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AUSTROTAXACEAE, A NEW FAMILY OF PINOPHYTA

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ABSTRACT

Austrotaxaceae, the name of a monogeneric New Caledonian gymnospermous family long thought to have been validly published by Nakai (1938, 1943), is validated.

KEY WORDS: Austrotaxaceae, nomenclature, New Caledonia

One of the family names in current use not accounted for by Reveal & Hoogland (1990, 1991) is Austrotaxaceae, a monogeneric taxon of Pinophyta from the northern part of New Caledonia. The name is validated here so that it may be included in a list of vascular plant family names (Hoogland & Reveal 1993) being considered for protection under the provisions proposed by Greuter (1991) for names in current use.

Austrotaxaceae Nakai *ex* Takhtajan & Reveal, *fam. nov.* A Taxaceis strobilo masculo paniculato-spicato bracteato, bracteis stamina peltata subtendentibus, strobili foeminei cum bracteatus sterilibus spiraliter dispositis, et tracheidis marginato-punctalis haud spiraliter dispositis incrassatis diversae. - TYPE: *Austrotaxus* Compton (1922).

Austrotaxaceae was first proposed by Nakai (Tyosen-Sanrin 158:14. 1938 and Chosakuronbun Mokuroku [*Ord. Fam. Trib. Nov. App.*] 35. 1943), but the

name was a *nomen nudum*. Airy Shaw (*in* J.H. Willis, *Dict. Fl. Pl. Ferns*, ed. 7, 108. 1966 and ed. 8, 112. 1973), and C.R. Gunn *et al.* (U.S.D.A. Tech. Bull. 1796:11. 1992) cited the name in synonymy, while J.A. Duke (*Fam. Polyclave* A8. 1969) provided diagnostic features but gave no Latin description, so that his name is invalid (Art. 36.1; Greuter *et al.* 1988). The name was accepted by Takhtajan (*Florist. Reg. World* 310. 1986, *nom. nud.*).

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THREE NEW SUPRAFAMILIAL NAMES IN MAGNOLIOPHYTA

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ABSTRACT

Three suprafamilial names proposed by Takhtajan in 1967, **Dilleniidae**, **Dillenianae**, and **Barbeyales**, are validated here as the initially cited validating descriptions were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*.

KEY WORDS: Magnoliophyta, subclass, superorders, orders, nomenclature

In 1967, the junior author proposed a series of suprafamilial names within Magnoliophyta, basing each on "a previously and effectively published description or diagnosis" as required by Art. 32.1(c) of the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Unfortunately, three of those new names were not validated by a Latin description or diagnosis as mandated by Art. 36.1. Accordingly, the following names, long in use, are proposed again.

Dilleniidae Takhtajan *ex* Reveal & Takhtajan, *subclass. nov.* based on Dilleniaceae R.A. Salisbury, *Parad. Lond.* 2: sub t. 73. 1807 ("Dilleneae"). - T.: *Dillenia* Linnaeus (1753).

Dillenianae Takhtajan *ex* Reveal & Takhtajan, *superord. nov.* based on Dilleniaceae R.A. Salisbury, *Parad. Lond.* 2: sub t. 73. 1807 ("Dilleneae"). - T.: *Dillenia* Linnaeus (1753).

Barbeyales Takhtajan *ex* Reveal & Takhtajan, *ord. nov.* based on the original description of the type genus *Barbeya* Schweinfurth, Malpighia 5:332. 1892.; Barbeyaceae Rendle, 1916, *nom. cons.*

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NEW ORDINAL NAMES FOR EXTANT VASCULAR PLANTS

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ABSTRACT

Ten ordinal names proposed by me in 1992 are validated here as the cited validating descriptions were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*. Sixteen additional ordinal names discovered in the literature since 1992 are validly published: ten are members of Polypodiophyta: **Aspleniales, Blechnales, Dicksoniales, Hymenophyllopsidales, Loxsomatales, Matoniales, Negripteridales, Plagiogyriales, Platyzomatales,** and **Stromatopteridales**. Two are referred to Pinophyta: **Cephalotaxales** and **Sciadopityales**. The remaining five are flowering plants (Magnoliophyta): **Byblidales, Icacinales, Myrothamnales, Rhizophorales,** and **Tecophilaeales**.

KEY WORDS: Polypodiophyta, Pinophyta, Magnoliophyta, orders, nomenclature

In an article published in 1992, I attempted to validate numerous ordinal names now in current use but failed to follow all of the provisions in the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Although all of the validating descriptions (Art. 32.1[c]) cited were validly published (Art. 32.3), I did not realize that Art. 36.1 mandated that after 1 Jan 1935, a name of a new taxon (not defined in the *Code* except partially in Art. 72.1[a]) must be accompanied by a reference to a previously and effectively published Latin description or diagnosis. As many of the validating descriptions I cited were in English, German, or French, it is necessary to validate the names with a description in Latin. However, unlike the provisions relative to the valid publication of names at and below the rank of family (Art. 41), the Latin description for suprafamilial ranks can be taken from any rank as there are no provisions in the *Code* to the contrary. Accordingly, the following names are proposed again.

Actinidiales Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Actinidia* J. Lindley by Bentham *in* Bentham & Hooker, *Gen. Pl.*: 1:184. 1862; Actinidiaceae J. Hutchinson, 1926.

Cercidiphyllales H.-H. Hu *ex* Reveal, *ord. nov.* based on the description of type genus *Cercidiphyllum* Siebold & Zuccarini by Walpers in *Ann. Bot. Syst.* 1:364. 1848; Cercidiphyllaceae Engler, 1909.

Crossosomatales Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Crossosoma* Nuttall by Bentham *in* Bentham & Hooker, *Gen. Pl.* 1:15. 1862; Crossosomataceae Engler, 1897.

Dioncophyllales Takhtajan *ex* Reveal, *ord. nov.* based on Dioncophyllaceae (Gilg) Airy Shaw in Kew Bull. 6:333. 1952. - T.: *Dioncophyllum* Baillon, *nom. cons.*

Eupteleales H.-H. Hu *ex* Reveal, *ord. nov.* based on the description of the type genus *Euptelea* Zuccarini by Hooker *in* Bentham & Hooker, *Gen. Pl.* 1:954. 1867; Eupteleaceae K. Wilhelm, 1910.

Hydrostachyales Diels *ex* Reveal, *ord. nov.* based on [Podostemaceae] subfam. ["subordo"] Hydrostachyoideae ["Hydrostachyeae"] Weddell *in* Alph. de Candolle, *Prodr.* 17:86. 1873. - T.: *Hydrostachys* Du Petit-Thouars; Hydrostachyaceae Engler, 1898.

Lactoridales Takhtajan *ex* Reveal, *ord. nov.* based on the description of the type genus *Lactoris* R.A. Philippi by Bentham *in* Bentham & Hooker, *Gen. Pl.* 3:127. 1880; Lactoridaceae Engler, 1888.

Salvadorales R. Dahlgren *ex* Reveal, *ord. nov.* based on the description of the type genus *Salvadora* Linnaeus by Endlicher, *Gen. Pl.* [15:]1141. 1840; Salvadoraceae J. Lindley (1836), *nom. cons.*

Welwitschiales C. Skottsberg *ex* Reveal, *ord. nov.* based on the description of the type genus *Welwitschia* J.D. Hooker, *nom. cons.*, by Bentham *in* Bentham & Hooker, *Gen. Pl.* 3:417, 418. 1880; Welwitschiaceae Markgraf, 1926.

Winterales A.C. Smith *ex* Reveal, *ord. nov.* based on [Magnoliaceae] trib. Wintereae Bentham *in* Bentham & Hooker, *Gen. Pl.* 1:17. 1862. - T.: *Wintera* J.A. Murray, *nom. illeg.* ≡ *Drimys* J.R. & G. Forster; Winteraceae R. Brown *ex* Lindley, 1830.

Continued work on ordinal names has revealed others that require validation since I accounted for several in 1992. Dr. Ruurd D. Hoogland has pointed out to me that most of the ordinal names proposed by Tieghem are not validly

published as they fall afoul of Ex. 6 in Art. 18. Although Tieghem used the termination "-ales", the names themselves were treated by Tieghem as French, and I accept Hoogland's recommendation that such names must be considered invalid.

Aspleniales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae ("Filices")] D. Asplenieae ("Aspleniaceae") S.F. Gray, *Nat. Arr. Brit. Pl.* 2:11. 1821 - T.: *Asplenium* Linnaeus; Aspleniaceae Newman, 1840.

Blechnales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae ("Filices")] trib. Blechneae ("Blechnaceae") C. Presl, *Epimel. Bot.* 103. 1851 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 6:463. 1851]. - T.: *Blechnum* Linnaeus; Blechnaceae (C. Presl) Copeland, 1947.

Byblidales Nakai *ex* Reveal, *ord. nov.* based on the original description of type genus *Byblis* R.A. Salisbury, *Parad. Lond.* 2: sub t. 95. 1808; Byblidaceae Domin, 1922.

Cephalotaxales Takhtajan *ex* Reveal, *ord. nov.* based on the original description of the type genus *Cephalotaxus* Siebold & Zuccarini *ex* Endlicher, *Gen. Pl. Suppl.* 2:27. 1842; Cephalotaxaceae Neger, 1907.

Dicksoniales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Filicaceae ("Filices")] trib. Dicksonieae ("Dicksoniaceae") C. Presl, Abh. Königl. Böhm. Ges. Wiss. ser. 4, 5: [= *Tent. Pterid.*] 133. 1836. - T.: *Dicksonia* L'Héritier.

Hymenophyllopsidales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Hymenophyllopsidaceae Pichi Sermolli, Webbia 24:712. 1970. - T.: *Hymenophyllopsis* Goebel.

Icacinales Tieghem *ex* Reveal, *ord. nov.* based on [Olacaceae ("Olacineae")] trib. Icacineae Bentham, Trans. Linn. Soc. London 18:679. 1841. - T.: *Icacina* A.H.L. de Jussieu.

Loxsomatales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Loxsomataceae C. Presl, *Gefässbündel Farrn* 31. 1847 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 5:339. 1848] ("Loxsomaceae"). - T.: *Loxsoma* R. Brown *ex* A. Cunningham, as "*Loxoma*".

Matoniales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Matoniaceae C. Presl, *Gefässbündel Farrn* 32. 1847 [Abh. Königl. Böhm. Ges. Wiss. ser. 5, 5:340. 1848]. - T.: *Matonia* R. Brown *ex* Wallich.

Myrothamnales Nakai *ex* Reveal, *ord. nov.* based on the description of the type genus *Myrothamnus* Welwitsch by Hooker *in* Bentham & Hooker, *Gen. Pl.* 1:1005. 1867; Myrothamnaceae Niedenzu, 1891.

Negripteridales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Negripteridaceae Pichi Sermolli, Nuovo Giorn. Bot. Ital. ser. 2, 53:160. 1946. - T.: *Negripteris* Pichi Sermolli.

Plagiogyriales Pichi Sermolli *ex* Reveal, *ord. nov.* based on the original description of *Plagiogyria* Mettenius, Abhandl. Senkenb. Ges. 2:265. 1858; Plagiogyriaceae Bower, 1926.

Platyzomatales Pichi Sermolli *ex* Reveal, *ord. nov.* based on Platyzomataceae Nakai, Bull. Natl. Sci. Mus. 29:4. 1950. - T.: *Platyzoma* R. Brown.

Rhizophorales Tieghem *ex* Reveal, *ord. nov.* based on Rhizophoraceae R. Brown *in* Flinders, *Voy. Terra Austral.* 2:549. 1814 ("Rhizophoreae"). - T.: *Rhizophora* Linnaeus.

Sciadopityales Takhtajan *ex* Reveal, *ord. nov.* based on the original description of the type genus *Sciadopitys* Siebold & Zuccarini, *Fl. Jap.* 2:1. 1842; Sciadopityaceae Luerssen, 1877.

Stromatopteridales Pichi Sermolli *ex* Reveal, *ord. nov.* based on [Gleicheniaceae] subfam. Stromatopteridoideae Nakai, Bull. Natl. Sci. Mus. 29:32. 1950. - T.: *Stromatopteris* Mettenius; Stromatopteridaceae (Nakai) Bierhorst, 1968.

Tecophilaeales Traub *ex* Reveal, *ord. nov.* based on Tecophilaeaceae F. Leybold, Bonplandia 10:370. 1862, *nom. cons.* - T.: *Tecophilaea* Bertero *ex* L.A. Colla.

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NEW SUBCLASS AND SUPERORDINAL NAMES FOR EXTANT VASCULAR PLANTS

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ABSTRACT

One subclass and four superorders proposed by me in 1992 are validated here as the cited validating descriptions cited were not in Latin as required by Art. 36.1 of the *International Code of Botanical Nomenclature*. The new taxa are **Lamiidae**, **Eucommianae**, **Fabanae**, **Theanae**, and **Zingiberanae**.

KEY WORDS: Magnoliophyta, subclass, superorder, nomenclature

In an article published in 1992, I attempted to validate numerous subclass and superordinal names now in current use but failed to follow all of the provisions in the *International Code of Botanical Nomenclature* (Greuter *et al.* 1988). Although all of the validating descriptions (Art. 32.1[c]) cited were validly published (Art. 32.3), I did not realize that Art. 36.1 mandated that after 1 Jan 1935, a name of a new taxon (not defined in the *Code* except partially in Art. 72.1[a]) must be accompanied by a reference to a previously and effectively published Latin description or diagnosis. As a few of the validating descriptions I cited were in English or German, it is necessary to validate the names with a description in Latin. However, unlike the provisions relative to the valid publication of names at and below the rank of family (Art. 41), the Latin description for suprafamilial ranks can be taken from any rank as there are no provisions in the *Code* to the contrary. Accordingly, the following names are proposed again.

Lamiidae Takhtajan *ex* Reveal, *subclass. nov.* based on Labiatae A.L. de Jussieu, *Gen. Pl.* 110. 1789, *nom. cons.* - T.: *Lamium* Linnaeus (1753); Lamiaceae Lindley (1836).

Eucommianae Takhtajan *ex* Reveal, *superord. nov.* based on the original description of the type genus *Eucommia* Oliver in Hooker's Icon. Pl. 20: t. 1950. 1890.

Fabanae R. Dahlgren *ex* Reveal, *superord. nov.* based on Class Leguminosae Endlicher, *Gen. Pl.* xlvii, 1253. 1841. – T.: *Faba* P. Miller (1754); Fabaceae Lindley (1836).

Theanae Thorne *ex* Reveal, *superord. nov.* based on Class Lamprophyllae Bartling, *Ord. Nat. Pl.* 225, 333. 1830. – T.: *Thea* Linnaeus (1753); Theaceae D. Don (1825).

Zingiberanae Takhtajan *ex* Reveal, *superord. nov.* based on Class Scitamineae Bartling, *Ord. Nat. Pl.* 24, 59. 1830. – T.: *Zingiber* G.R. Boehmer, *nom. cons.* (1760); Zingiberidaceae Lindley (1835).

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Thanks are extended to A.L. Takhtajan, B.E. Dutton, and J.H. Wiersema for reviewing the manuscript. Work on ordinal and plant family names in Europe was supported by National Science Foundation Grant BSR-8812816. This is Scientific Article A-6424, Contribution No. 8617, of the Maryland Agricultural Experiment Station and Cooperative Extension Service.

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Reveal, J.L. 1992. Validation of subclass and superordinal names in Magnoliophyta. Novon 2:235-237.

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THE CORRECT NAME OF THE NORTHERN EXPRESSION OF *SARRACENIA PURPUREA* L. (SARRACENIACEAE)

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ABSTRACT

Due to a lectotypification, and an inability to conserve the name and type of a taxon that impacts upon infraspecific nomenclature, the correct name for the northern expression of *Sarracenia purpurea* L. is not var. *purpurea* as traditionally understood but var. *terrae-novae* de la Pylaie. The southern expression of the species, known as var. *venosa* (Raf.) Fernald, must now be named var. *purpurea*.

KEY WORDS: *Sarracenia*, Sarraceniaceae, nomenclature

One of the guiding principles of systematics is that taxonomy drives nomenclature, not the other way around. The example presented here is one of those instances where differences in taxonomic opinion and an unfortunate lectotypification have resulted in a conflicting nomenclature.

In 1840, Rafinesque (p. 33) divided Linnaeus' (1753:510) *Sarracenia purpurea* L. into two species, listing *S. gibbosa* Raf. (under the orthography, *Sarazina*) as a new name for *S. purpurea* and then appended *S. grandiflora* Raf. as an alternative for that. In doing so he established the concept that *S. purpurea* applied to a northern plant that occurred from Canada to Virginia. For the southern expression, Rafinesque proposed *S. venosa* Raf.; this, he said, grew from Virginia to Florida.

Sarracenia purpurea was regarded as a widespread, albeit variable species (save for the recognition of *S. heterophylla* A. Eaton at some infraspecific rank) until 1933 when Wherry recognized two subspecies, the northern subsp. *gibbosa* (Raf.) Wherry and the southern subsp. *venosa* (Raf.) Wherry. Fernald (1936:233) subsequently proposed var. *venosa*, and Wherry (1972:146) eventually corrected the name of the northern taxon to the autonym subsp. *purpurea*.

Recognition of two expressions within *Sarracenia purpurea* has not been uniformly accepted. Bell (1949) rejected the distinction, but it was accepted

by Fernald (1950), Gleason (1952), and Gleason & Cronquist (1963, 1991). In Canada, Rousseau (1974) and Taylor & MacBryde (1977) recognized var. *purpurea*, Scoggan (1978) the f. *purpurea*, and other authors (Scoggan 1957; Looman & Best 1979; Porsild & Cody 1980; Moss 1983; Hinds 1986) defined the range of *S. purpurea* so as to exclude that of the southern var. *venosa*. Authors of several recent southeastern United States floras (Radford *et al.* 1964; Duncan & Kartesz 1981; Clewell 1985) have not recognized var. *venosa*, although it was accepted by Murry & Urbatsch (1979). A distinction between the two has long been championed by Schnell (1976, 1979, 1981) and this was accepted by Kartesz & Kartesz (1980).

One of the mysteries associated with the Linnaean herbarium is the lack of Linnaeus' specimens of *Sarracenia*. There was a genus folder but no specimens when James E. Smith purchased the herbarium (Jackson 1907). Linnaeus likely had herbarium material since *S. purpurea* was collected by Kalm (UPS), and the plant had been in cultivation since the early 1600s (Juniper *et al.* 1989:14). Nonetheless, no original Linnaean herbarium material has ever been traced. (The Kalm sheet can not be considered original material as there is no evidence that Linnaeus examined the sheet.)

Without any available specimens, McDaniel (1971:26) lectotypified *Sarracenia purpurea* on a Catesby (1738: t. 70) plate of var. *venosa*, one of only two available elements from which a selection could be made, the other being the Plukenet (1705: t. 376, f. 6; voucher: *H.S.* 90:59, BM-SL) figure selected by Wherry (1933:2) as the neotype (as "type"; Art. 8.3; Greuter *et al.* 1988) of var. *venosa*. McDaniel, who did not distinguish varieties, recognized that because of his typification, the northern element, if such were distinguished, would have to be called var. *terrae-novae* de la Pylaie (1827:389); however, this name has not been adopted by any modern author.

Before urging the adoption of the de la Pylaie name, should one wish to distinguish between the two expressions, a conservation proposal was prepared and submitted for review by members of the Spermatophyte Committee in the hopes of being able to conserve the name and the type of *Sarracenia purpurea* on the northern expression represented by the Kalm sheet. The argument was that the infraspecific autonym *purpurea* "has been widely and persistently used for a taxon or taxa not including its type ..." (Art. 63) since 1971 when McDaniel lectotypified *S. purpurea* upon the southern var. *venosa*.

In this case, the effect on the rank of the taxon in question was not at the specific level, for which conservation was requested, but at an autonymic infraspecific rank, and then only when a taxonomic distinction is made between two expressions of questionable merit. In this case conservation is not possible as the type of the species (the southern expression) is still representative of the species, and therefore the specific name can not be considered under any provision in the current *Code* (Greuter *et al.* 1988) as *Sarracenia purpurea* has not been misapplied, only a variant of it has been misapplied.

If the proposal could have been adopted, the application of *Sarracenia purpurea* would have continued as currently understood in the popular (*e.g.*, Cheers 1983; Slack 1986; McKeown 1991), garden (Hindle 1991), and technical systematic literature when the species is divided into a northern var. *purpurea* and a southern var. *venosa*. As such a proposal can not even be considered, the northern variant must be called var. *terra-novae* de la Pylaie, a name heretofore not taken up. If one were to recognize the taxon at the subspecific rank, a new combination is necessary.

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STREPTOPUS LANCEOLATUS (AITON) REVEAL, A NEW NAME FOR *STREPTOPUS ROSEUS* MICHX. (CONVALLARIACEAE)

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ABSTRACT

Solander (*in litt.*) proposed *Uvularia lanceolata* for Newfoundland specimens gathered by Banks in 1766. When formally published by Aiton in 1789, references were made to a 1635 Cornut illustration and a 1785 Menzies introduction. The name is lectotypified here on the Banks sheet annotated by Solander, a specimen of *Streptopus roseus* Michaux. The Aiton name is transferred to *Streptopus*, as **S. lanceolatus**, and three new infraspecific combinations are proposed. The name applied to the widespread expression, *S. roseus* variety *perspectus* Fassett, becomes a synonym of variety *lanceolatus*.

KEY WORDS: *Streptopus, Uvularia*, nomenclature, typification, Linnaeus

The identity of *Uvularia lanceolata* Aiton (1789:434) has long been doubtful. Authorship of the name is technically attributed to Aiton (Reveal 1985, 1990), but the name and description were proposed by one of his employees, Daniel Solander (1733–1782). Solander's premature death prevented many of his scientific names from being published under his own authorship, and Stafleu & Cowan (1985:721) list no independently authored books, although numerous Solander manuscripts are extant in the Department of Botany Library at The Natural History Museum (BM) in London (Diment & Wheeler 1984).

A review of Solander's notes and specimens at BM has shown that *Uvularia lanceolata* is the earliest available name for *Streptopus roseus* Michaux (1803:201).

In April, 1766, Joseph Banks (1743–1820) set out on his first foreign scientific expedition, traveling aboard the *Niger* to St. Johns, Newfoundland (Carter

1988:32). Banks kept a journal, and recorded therein many of his acquisitions. He collected numerous plant and animal specimens during his month-long (11 May–11 June 1766) stay at St. Johns. On 11 June the *Niger* sailed to Croque Harbor at the northeast tip of the island and lay at anchor for a week (13–19 June). At both sites, Banks collected specimens Solander later annotated *Uvularia lanceolata.*

In Solander's manuscript "slip catalogue" (vol. 8, p. 537, BM) is the following entry:

lanceolata UVULARIA foliis perfoliatis ovato lanceolatis acuminatis.

Polygonatum ramosum flore luteo minuj. *Cornut. can. 40. t. 41. Moris. hist.*

Habitat in Terra Labrador America septentrionalis

Differt ab Uvularia perfoliata 437.2 mscr quod Caulis ~~majis~~ ramosior festicet a singula ala, quod flores minore, & quid folia angustiora & acuminata.

This entry was also included in Solander's unpublished 1767 manuscript, "Descriptions of plants from various parts of the world," copied from the slip catalogue by Herman Diedrich Spöring (Marshall 1978). On the slip is a large "L," which Marshall felt alluded to specimens in the Sloane herbarium (BM-SL), and a large "+" indicating that Solander included the name in Aiton's *Hortus Kewensis.*

I have been unable to find a specimen annotated by Solander with *Uvularia lanceolata* among the more than 300 volumes of dried plants in the Sloane herbarium, but one or more probably exist. Nonetheless, on two Banks sheets now in the general herbarium (BM), Solander wrote this manuscript name. No reference was made to the Banks specimens when the name was proposed in 1789, but under Article 7.4 (Greuter *et al.* 1988), they are still "original material" as Solander examined them prior to publication, and by annotating them with his binomial, he associated the two sheets with the concept of the named taxon.

When Aiton (1789) proposed the name he cited a Cornut (1635:36) name and figure (t. 37) in synonymy with the comment "Introd. 1785, by Mr. Archibald Menzies." The specimen illustrated by Cornut in all likelihood is *Uvularia grandiflora* J.E. Smith, but what Menzies introduced is less certain.

Archibald Menzies (1754–1842), best known as the surgeon-naturalist with Colnett and later Vancouver in the Pacific Northwest, was ship's surgeon aboard HMS *Assistance* on the Halifax station in 1785 and 1786. He was a correspondent of Banks, and no doubt sent Banks seeds; Menzies certainly gave Banks live plants when he returned to England in August, 1786 (Carter 1988:222). I have not found a specimen of either *Uvularia* or *Streptopus* that I can directly attribute to Menzies, nor a cultivated specimen that I can associate with any 1785 introduction. However, there is a Labrador specimen of *Streptopus*, mounted with the Banks collection from St. Johns, that I believe is the Menzies voucher. Lysaght (1971:321) mistakenly attributed the Labrador specimen to Banks, but Banks never collected this specimen in Labrador.

The correct application of the name *Uvularia lanceolata* has long been problematic. Pursh (1814:231) considered it to be the same as *U. grandiflora* whereas Baker (1880:462) placed it in synonymy under *U. perfoliata* Linnaeus. Wilbur (1963:186) expressed a "strong suspicion" that *U. lanceolata* was the first binomial for *U. grandiflora*, but the name "should remain unassigned until authentic specimens are discovered." The discovery Wilbur suggested has now been made, and as a result the following new combinations are required:

Streptopus lanceolatus (Aiton) Reveal, *comb. nov.* BASIONYM: *Uvularia lanceolata* Aiton, *Hort. Kew.* 1:434. 1789. TYPE: CANADA. Newfoundland: in woods near Croque, 13–19 June 1766, *Banks s.n.* (LECTOTYPE [here designated]: BM).

Streptopus roseus Michx. var. *perspectus* Fassett, Rhodora 37:109. 1935. TYPE: UNITED STATES. New Hampshire: under trees, floor of Tuckerman's Ravine, Mt. Washington, 27 June 1934, *Fassett 16422* (HOLOTYPE: WIS).

Streptopus roseus Michx. f. *giganteus* Fassett, Rhodora 37:110. 1935. TYPE: CANADA. Quebec: Ile Nue, Archipel de Mingan, 28 July 1926, *Victorin & Rolland 24336* (HOLOTYPE: MT).

Banks does not mention specifically in his journal as having collected *Streptopus lanceolatus* at Croque. Nonetheless, he annotated the lectotype "Newfoundland in woods near Croque," and in his list of plants gathered in 1766, there is an entry that reads (mss. p. 11) "Uvularia Amplexifolia Shady Places Croque S^t Johns".

The lectotype is the widespread phase of the species, which ranges from southern Labrador to the mountains of South Carolina, westward to southern Ontario and Michigan (Fernald 1906; Fassett 1935).

Three other combinations are necessary:

Streptopus lanceolatus (Aiton) Reveal var. **curvipes** (Vail) Reveal, *comb. nov.* BASIONYM: *Streptopus curvipes* Vail *in* Rydberg, Bull. Torrey Bot. Club 28:267. 1901. *Streptopus roseus* Michx. var. *curvipes* (Vail) Fassett, Rhodora 37:110. 1935. TYPE: CANADA. British Columbia: Asulkan Pass, 4,400 ft., June-July 1897, *Z. W. Palmer s.n.* (HOLOTYPE: NY).

Streptopus lanceolatus (Aiton) Reveal var. **longipes** (Fernald) Reveal, *comb. nov.* BASIONYM: *Streptopus longipes* Fernald, Rhodora 8:71. 1906. *Streptopus roseus* Michx. var. *longipes* (Fernald) Fassett, Rhodora 37:110. 1935. TYPE: UNITED STATES. Michigan: Marquett Co., Turin, 5 June 1901, *Barlow s.n.* (HOLOTYPE: GH).

Streptopus lanceolatus (Aiton) Reveal var. **roseus** (Michaux) Reveal, *comb. nov.* BASIONYM: *Streptopus roseus* Michaux, *Fl. Boreali-Amer.* 1:201, t. 18. 1803. *Uvularia rosea* (Michaux) Persoon, *Syn. Pl.* 1:360. 1805. *Hexorima dichotoma* Rafinesque, Specchio 1:193. 1814, *nom. illeg.* (Art. 63.1). TYPE: UNITED STATES. Carolina: mountains, *Michaux s.n.* (HOLOTYPE: P).

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ON THE VALID PUBLICATION OF *COLLINSIA VIOLACEA* NUTTALL (SCROPHULARIACEAE)

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ABSTRACT

Collinsia violacea was first proposed by Thomas Nuttall in an 1827 textbook; it was later published in an 1835 article in the Transactions of the American Philosophical Society. Subsequent authors have consistently attributed the name to the 1835 reference.

KEY WORDS: *Collinsia*, Scrophulariaceae, nomenclature

While reviewing the first edition of Thomas Nuttall's (1827) textbook for vascular plant family names, I chanced to spot in a paragraph on *Collinsia* the distinctive asterisk Nuttall used to denote new species. After describing the genus and *C. verna*, the type of the genus, Nuttall wrote:

> A second, and very similar annual species is found on the banks of the
> Arkansa, west of the Mississippi; which I propose to call *Collinsia* **violacea* from the peculiar hue of the corolla. In this species the capsule contains 8 to 12 seeds.

Nuttall described the flowers of *Collinsia verna* as "beautifully particolored, the upper lip being white, the lower a fine blue." In addition he said the capsule of *C. verna* contained "only 2 or 3 seeds." Clearly, the characterization of the flowers of *C. violacea* as violet and the notation that the capsule contains 8 to 12 seeds is sufficient to validate the name. The valid place of publication and type information is as follows:

Collinsia violacea Nuttall, *Intr. Bot.* 131. 1827. - LT.: "On the hills and upland woods of the Arkansas and Red Rivers," probably along the Poteau River above Fort Smith, Le Flore Co., Oklahoma, 26 Apr 1819, *Nuttall s.n.* (BM!), designated by Pennell (1935:293, as "Type", an Art. 8.4 lectotypification; see Greuter *et al.* 1988).

Pennell (1935) indicated that there was an "isotype" at PH, but I have not seen this sheet.

Until now, the authorship and place of publication for this name has been attributed (Newsom 1929; Pennell 1935) to a later article where Nuttall (1835:179) gave a full and detailed description. Both Newsom and Pennell allude to *Collinsia purpurea* Rafinesque (1824:85) as possibly being an earlier name for *C. violacea.* Pennell even lectotypifies the name on a Dr. Christian Miller "collection from the banks of the Wabash" River in Indiana, outside the known range of *C. violacea.*

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AUTOMATICALLY TYPIFIED SUPERORDINAL AND ORDINAL NAMES FOR THE FLOWERING PLANTS (MAGNOLIOPHYTA) AS RECOGNIZED BY THORNE (1992) AND ARRANGED FOLLOWING THE PRINCIPLES OF PRIORITY, AUTONYMY, AND THE SUBSTITUTION OF ALTERNATIVE NAMES

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ABSTRACT

Using the most recent system of classification for flowering plants (Magnoliophyta) proposed by Thorne (1992), superordinal and ordinal names and their synonyms are arranged according to the principles of priority, autonymy, and the substitution of alternative names.

KEY WORDS: Magnoliophyta, nomenclature, classification, ordinal names

INTRODUCTION

Names above the rank of family are not subject to the rules of priority (Art. 11.4; Greuter *et al.* 1988). Nonetheless, Thorne (1992) has attempted to apply priority to ordinal names starting with Lindley (1833) even though he was aware that the majority of the names proposed by Lindley had been validly published by Dumortier (1829) four years earlier. The list of names presented below follows Thorne's classification scheme, but adopts a modified principle of priority and the notion of autonymy. The concept of substituting alternative names at the family level (Art. 18.5) is applied to superordinal and ordinal names. Also, I have retained technically illegitimate ordinal and superordinal names if the formerly illegitimate family name upon which they were based has been conserved (see App. IIB).

Thorne (1992) adopted the concept of autonyms for ordinal names even though this is not mandated by the present *Code* for names above the rank

of family. Thus, he took up Magnoliales (1838) rather than the earlier Laurales (1826) within Magnolianae. I have maintained this principle. Finally, an ordinal name is adopted only if the family name itself is accepted either because a particular family name is conserved (*e.g.*, Saxifragales [1829] over Sedales [1828]) or because of a taxonomic decision (*e.g.*, Asparagales [1838] over Asteliales [1829]). A series of footnotes is appended to the end of the catalogue justifying why a particular name was adopted, or noting names accepted here which are different from those given by Thorne.

The purpose of this exercise is to ascertain the nomenclatural affect of priority on names at the rank of order. If the concept of "names in current use" (Greuter 1991; Hawksworth 1991) is added to the *Code* at the forthcoming International Botanical Congress, then perhaps, in time, this concept can be expanded to include names above the rank of family. Having concentrated recently on vascular plant nomenclature at the family rank and above, I can attest to the difficulty of finding the earliest places of valid publication for these names. Rules in the *Code* are vague for names above the rank of family and will require some revision.

Thorne's (1992) treatment is particularly useful for this nomenclatural experiment in that he recognized fewer superorders and orders than his contemporaries, thereby making the impact of priority more significant on a case-by-case basis. By adopting the principle of priority, but considering it secondary to the principle of autonymy, and then accepting the principle that ordinal names based on alternative family names have equivalent priority as their alternative ordinal names, there is only minimal nomenclatural disruption. The most unfortunate name changes encountered using Thorne's (1992) recent system of classification is that Dioscoreales (1876) must be replaced by Taccales (1829). Problems such as these can be addressed by conservation and/or the establishment of a names in current use list for ordinal names. In short, priority has little significant nomenclature impact upon the established nomenclature of ordinal names.

A catalogue of ordinal names with their full citation is now in its final stages of preparation and review. It is requested that additional names and/or corrections to the dates of publication given here be forwarded to me.

CATALOGUE OF SUPERORDINAL AND ORDINAL NAMES

I. **Magnolianae** Takhtajan, 1967
Nelumbonanae Takhtajan *ex* Reveal, 1992
Ranunculanae Takhtajan *ex* Reveal, 1992

1. **Magnoliales** Bromhead, 1838[1]
Laurales Perleb, 1826
Aristolochiales Dumortier, 1829
Gyrocarpales Dumortier, 1829
Monimiales Dumortier, 1829

Piperales Dumortier, 1829
Annonales Lindley, 1833
Calycanthales C. Martius, 1835
Asarales Burnett, 1835
Canellales Cronquist, 1957
Illiciales H.H. Hu *ex* Cronquist, 1981
Austrobaileyales Takhtajan *ex* Reveal, 1992
Chloranthales Conzatti & L.C. Smith *ex* Reveal, 1992
Eupomatiales Takhtajan *ex* Reveal, 1992
Lactoridales Takhtajan *ex* Reveal, 1993
Winterales A.C. Smith *ex* Reveal, 1993

2. **Ceratophyllales** Bischoff, 1840
3. **Nelumbonales** Burnett, 1835
4. **Paeoniales** Heintze, 1927
Glaucidiales Takhtajan *ex* Reveal, 1992
5. **Berberidales** Dumortier, 1829
Podophyllales Dumortier, 1829
Ranunculales Dumortier, 1829
Papaverales Dumortier, 1829
Menispermales Bromhead, 1838
Helleborales Nakai, 1949

II. **Nymphaeanae** Thorne *ex* Reveal, 1992

6. **Nymphaeales** Dumortier, 1829
Euryalales H.-L. Li, 1955

III. **Rafflesianae** Thorne *ex* Reveal, 1992

7. **Rafflesiales** Oliver, 1895[2]
Cytinales Dumortier, 1829
Mitrastemonales Makino, 1911
Hydnorales Takhtajan *ex* Reveal, 1992

IV. **Caryophyllanae** Takhtajan, 1967

8. **Caryophyllales** Perleb, 1826
Amaranthales Dumortier, 1829
Cactales Dumortier, 1829
Chenopodiales Dumortier, 1829
Nyctaginales Dumortier, 1829
Portulacales Dumortier, 1829
Scleranthales Dumortier, 1829
Petiveriales Lindley, 1833
Silenales Lindley, 1833
Dianthales Burnett, 1835
Atriplicales Horaninow, 1847
Opuntiales Willkomm, 1854

V. **Theanae** Thorne *ex* Reveal, 1992

Lecythidanae Takhtajan *ex* Reveal, 1992
Nepenthanae Takhtajan *ex* Reveal, 1992
Plumbaginanae Takhtajan *ex* Reveal, 1992
Polygonanae Takhtajan *ex* Reveal, 1992
Primulanae R. Dahlgren *ex* Reveal, 1992
Sarracenianae Thorne *ex* Reveal, 1992
Dillenianae Takhtajan *ex* Reveal & Takhtajan, 1993

9. **Theales** Lindley, 1833[3]
Hypericales Dumortier, 1829
Nepenthales Dumortier, 1829
Camelliales Burnett, 1835
Illicales Burnett, 1835
Sarraceniales Bromhead, 1838
Aquifoliales Senft, 1856
Elatinales Nakai, 1949
Dilleniales Hutchinson, 1924
Medusagynales Brenan, 1952
Lecythidales Cronquist, 1957
Ancistrocladales Takhtajan *ex* Reveal, 1992
Actinidiales Takhtajan *ex* Reveal, 1993
Dioncophyllales Takhtajan *ex* Reveal, 1992

Ochnales Hutchinson *ex* Reveal, 1993
Paracryphiales Takhtajan *ex* Reveal, 1992
10. **Ericales** Dumortier, 1829
Vacciniales Dumortier, 1829
Rhodorales Horaninow, 1847
Empetrales Nakai, 1930
11. **Fouquieriales** Takhtajan *ex* Reveal, 1992
12. **Styracales** Burnett, 1835
Sapotales J.D. Hooker *in* W.H. Harvey, 1868
Diospyrales Prantl, 1874
Ebenales Engler, 1892
13. **Primulales** Dumortier, 1829
Samolales Dumortier, 1829
Plumbaginales Lindley, 1833
Myrsinales Bromhead, 1838
14. **Polygonales** Dumortier, 1829
Rumicales Burnett, 1835

VI. **Celastranae** Takhtajan, 1967
15. **Celastrales** Baskerville, 1839

VII. **Malvanae** Takhtajan, 1967
Euphorbianae Takhtajan *ex* Reveal, 1992
Rhamnanae Takhtajan *ex* Reveal, 1992
Urticanae Takhtajan *ex* Reveal, 1992
16. **Malvales** Dumortier, 1829
Tiliales Hutchinson, 1924
17. **Urticales** Dumortier, 1829
Ficales Dumortier, 1829
Ulmales Lindley, 1833
18. **Barbeyales** Takhtajan *ex* Reveal & Takhtajan, 1993
19. **Rhamnales** Dumortier, 1829
Elaeagnales Bromhead, 1838
20. **Euphorbiales** Lindley, 1833
Daphnales Lindley, 1833
Crotonales Horaninow, 1847
Thymelaeales Willkomm, 1854
Pandales Engler & Gilg, 1912-1913
Simmondsiales Reveal, 1992

VIII. **Violanae** R. Dahlgren *ex* Reveal, 1992
21. **Violales** Perleb, 1826
Cistales Reichenbach, 1828
Begoniales Dumortier, 1829
Cucurbitales Dumortier, 1829
Datiscales Dumortier, 1829
Passiflorales Dumortier, 1829
Samydales Dumortier, 1829
Turnerales Dumortier, 1829
Bixales Lindley, 1833
Salicales Lindley, 1833
Homaliales Bromhead, 1838
Lacistematales Baskerville, 1839
Tamaricales Hutchinson, 1924
Flacourtiales Heintze, 1927
Caricales L. Benson, 1957
22. **Brassicales** Bromhead, 1838[4]
Resedales Dumortier, 1829
Capparales Hutchinson, 1924
Tovariales Nakai, 1943
Salvadorales R. Dahlgren *ex* Reveal, 1993
23. **Batales** Engler, 1907

IX. **Santalanae** Thorne *ex* Reveal, 1992
Balanophoranae R. Dahlgren *ex* Reveal, 1992
24. **Santalales** Dumortier, 1829
Anthobolales Dumortier, 1829
Loranthales Dumortier, 1829
Olacales Bentham, 1862
Medusagynales Brenan, 1952
25. **Balanophorales** Dumortier, 1829
Cynomoriales Burnett, 1835

X. **Geranianae** Thorne *ex* Reveal, 1992
26. **Linales** Baskerville, 1839
27. **Rhizophorales** Tieghem

ex Reveal, 1993

28. **Geraniales** Dumortier, 1829
Balsaminales Lindley, 1833
Oxalidales Heintze, 1927
Limnanthales Nakai, 1930
Tropaeolales Takhtajan *ex* Reveal, 1992

29. **Polygalales** Dumortier, 1829
Vochysiales Dumortier, 1829
Malpighiales C. Martius, 1835

XI. **Rutanae** Takhtajan, 1967
Fabanae R. Dahlgren *ex* Reveal, 1992

30. **Rutales** Perleb, 1826[5]
Papilionales Batsch, 1802
Citrales Dumortier, 1829
Sapindales Dumortier, 1829
Terebinthales Dumortier, 1829
Acerales Lindley, 1833
Coriariales Lindley, 1833
Meliales Lindley, 1833
Connarales Burnett, 1835
Lotales Burnett, 1835
Mimosales Burnett, 1835
Aesculales Bromhead, 1838
Fabales Bromhead, 1838
Burserales Baskerville, 1839
Cassiales Horaninow, 1847
Leitneriales Engler, 1897
Julianales Engler, 1907
Moringales Nakai, 1943

XII. **Proteanae** Takhtajan, 1967

31. **Proteales** Dumortier, 1829

XIII. **Rosanae** Takhtajan, 1967
Hamamelidanae Takhtajan, 1967
Juglandanae Takhtajan *ex* Reveal, 1992
Podostemonanae R. Dahlgren *ex* Reveal, 1992
Trochodendranae Takhtajan *ex* Reveal, 1992

32. **Hamamelidales** Grisebach, 1854
Trochodendrales Takhtajan *ex* Cronquist, 1981
Cercidiphyllales H.-H. Hu *ex* Reveal, 1993
Eupteleales H.-H. Hu *ex* Reveal, 1993

33. **Casuarinales** Lindley, 1833

34. **Balanopales** Engler, 1897
Didymelales Takhtajan, 1967
Daphniphyllales Pulle *ex* Cronquist, 1981
Buxales Takhtajan *ex* Reveal, 1992

35. **Bruniales** Dumortier, 1829
Roridulales Nakai, 1943
Geissolomatales Takhtajan *ex* Reveal, 1992
Hydrostachyales Diels *ex* Reveal, 1993
Myrothamnales Nakai *ex* Reveal, 1993

36. **Juglandales** Dumortier, 1829
Myricales Engler, 1897
Rhoipteleales Novák *ex* Reveal, 1992

37. **Betulales** Burnett, 1835[6]
Corylales Dumortier, 1829
Quercales Burnett, 1835
Fagales Engler, 1892

38. **Rosales** Perleb, 1826
Sanguisorbales Dumortier, 1829
Crossosomatales Takhtajan *ex* Reveal, 1993

39. **Saxifragales** Dumortier, 1829[7]
Sedales Reichenbach, 1828
Crassulales Lindley, 1833
Grossulariales Lindley, 1833
Droserales Grisebach, 1854
Diapensiales Engler & Gilg, 1924
Cephalotales Nakai, 1943
Parnassiales Nakai, 1943
Stylidiales Takhtajan *ex* Reveal, 1992

40. **Podostemales** Lindley, 1833[8]
Marathrales Dumortier, 1829
41. **Cunoniales** Hutchinson, 1924

XIV. **Aralianae** Takhtajan, 1967[9]
Cornanae Thorne *ex* Reveal, 1992
Eucommianae Takhtajan *ex* Reveal, 1992
Vitanae Takhtajan *ex* Reveal, 1992
42. **Brexiales** Lindley, 1833[10]
Hortensiales Grisebach, 1854
Hydrangeales Nakai, 1943
43. **Cornales** Dumortier, 1829
Vitales Burnett, 1835
Haloragales Bromhead, 1838
Garryales Lindley, 1846
Eucommiales Nemejc *ex* Cronquist, 1981
Aralidiales Takhtajan *ex* Reveal, 1992
Gunnerales Takhtajan *ex* Reveal, 1992
44. **Pittosporales** Lindley, 1833
Byblidales Nakai *ex* Reveal, 1993
45. **Araliales** Burnett, 1835
Angelicales Burnett, 1835
Ammiales J.K. Small, 1903
Apiales Nakai, 1930
Torricelliales Takhtajan *ex* Reveal, 1992
46. **Dipsacales** Dumortier, 1829
Viburnales Dumortier, 1829
Caprifoliales Lindley, 1833
Valerianales Burnett, 1835
Lonicerales C. Baenitz, 1877
Adoxales Nakai, 1949

XV. **Asteranae** Takhtajan, 1967
Campanulanae Takhtajan *ex* Reveal, 1992
47. **Asterales** Lindley, 1833[11]
Ambrosiales Dumortier, 1829
Calycerales Burnett, 1835
Carduales J.K. Small, 1903
48. **Campanulales** Reichenbach 1828
Brunoniales Lindley, 1833
Goodeniales Lindley, 1833

XVI. **Solananae** R. Dahlgren *ex* Reveal, 1992
49. **Solanales** Dumortier, 1829
Boraginales Dumortier, 1829
Convolvulales Dumortier, 1829
Nolanales Lindley, 1833
Polemoniales Bromhead, 1838
Echiales Lindley, 1846

XVII. **Loasanae** R. Dahlgren *ex* Reveal, 1992
50. **Loasales** Bessey, 1907

XVIII. **Myrtanae** Takhtajan, 1967
51. **Myrtales** Reichenbach, 1828
Onagrales Reichenbach, 1828
Penaeales Lindley, 1833
Oenotherales Bromhead, 1838
Combretales Baskerville, 1839
Lythrales Oliver, 1895
Melastomatales Oliver, 1895

XIX. **Lamianae** Takhtajan, 1967[12]
Gentiananae Thorne *ex* Reveal, 1992
52. **Rubiales** Dumortier, 1829
Asclepiadales Dumortier, 1829
Cinchonales Lindley, 1833
Gentianales Lindley, 1833
Loganiales Lindley, 1833
Apocynales Bromhead, 1838
Galiales Bromhead, 1838
Vincales Horaninow, 1847
Chironiales Grisebach, 1854
Theligonales Nakai, 1942
53. **Lamiales** Bromhead, 1838[13]
Callitrichales Dumortier, 1829
Gesneriales Dumortier, 1829
Globulariales Dumortier, 1829
Jasminales Dumortier, 1829
Pinguicularales Dumortier, 182

Rhinanthales Dumortier, 1829
Veratrales Dumortier, 1829
Acanthales Lindley, 1833
Bignoniales Lindley, 1833
Lentibulariales Lindley, 1833
Oleales Lindley, 1833
Plantaginales Lindley, 1833
Scrophulariales Lindley, 1833
Hippuridales Burnett, 1835
Menthales Burnett, 1835
Ligustrales Bischoff, 1840
Verbenales Horaninow, 1847

X. **Lilianae** Takhtajan, 1967
54. **Liliales** Perleb, 1826
Colchicales Dumortier, 1829
Iridales Dumortier, 1829
Paridales Dumortier, 1829
Ixiales Lindley, 1836
Alstroemeriales Hutchinson, 1934
Melanthiales R. Dahlgren *ex* Reveal, 1992
55. **Burmanniales** Heintze, 1927
56. **Asparagales** Bromhead, 1838[14]
Asteliales Dumortier, 1829
Narcissales Dumortier, 1829
Amaryllidales Bromhead, 1840
Agavales Hutchinson, 1934
Alliales Traub, 1972
Hanguanales R. Dahlgren *ex* Reveal, 1992
Velloziales R. Dahlgren *ex* Reveal, 1992
57. **Taccales** Dumortier, 1829[15]
Tamales Dumortier, 1829
Smilacales Lindley, *Nix. Pl.* 23. 1833
Dioscoreales J.D. Hooker, 1876
58. **Orchidales** Dumortier, 1829

XI. **Hydatellanae** Takhtajan *ex* Reveal, 1992
59. **Hydatellales** Cronquist *in* Takhtajan, 1980

XII. **Triuridanae** Thorne *ex* Reveal, 1992
60. **Triuridales** J.D. Hooker *in* Le Maout & Decaisne, 1876

XIII. **Alismatanae** Takhtajan, 1967
Butomanae Takhtajan *ex* Reveal, 1992
Najadanae Takhtajan *ex* Reveal, 1992
61. **Alismatales** Dumortier, 1829[16]
Najadales Reichenbach, 1828
Hydrocharitales Dumortier, 1829
Butomales Hutchinson, 1934
Vallisneriales Nakai, 1949
Elodeales Nakai, 1950
62. **Potamogetonales** Dumortier, 1829
Aponogetonales Hutchinson, 1934
Juncaginales Hutchinson, 1934
Cymodocealeles Nakai, 1943
Posidoniales Nakai, 1943
Zosterales Nakai, 1943
Ruppiales Nakai, 1950
Scheuchzeriales B. Boivin, 1956

XIV. **Aranae** Thorne *ex* Reveal, 1992
Cyclanthanae Thorne *ex* Reveal, 1992
63. **Arales** Dumortier, 1829
64. **Cyclanthales** Nakai, 1930
65. **Acorales** Burnett, 1835

XV. **Pandananae** Thorne *ex* Reveal, 1992
66. **Pandanales** Lindley, 1833

XVI. **Arecanae** Takhtajan, 1967
67. **Arecales** Bromhead, 1840[17]
Phoenicales Burnett, 1835
Cocosales Nakai, 1930

XVII. **Commelinanae** Takhtajan, 1967
Bromelianae R. Dahlgren *ex* Reveal, 1992
Juncanae Takhtajan, 1967

Pontederianae Takhtajan *ex* Reveal, 1992
Typhanae Thorne *ex* Reveal, 1992
Zingiberanae Takhtajan *ex* Reveal, 1992
68. **Bromeliales** Dumortier, 1829
69. **Philydrales** Dumortier, 1829
Pontederiales J.D. Hooker, 1876
Haemodorales Hutchinson, 1934
70. **Typhales** Dumortier, 1829
71. **Cannales** Dumortier, 1829[18]
Amomales Lindley, 1833
Musales Burnett, 1835
Zingiberales Grisebach, 1854
72. **Commelinales** Dumortier 1829
Ephemerales Burnett, 1835
Xyridales Lindley, 1846
Eriocaulales Nakai, 1930
Mayacales Nakai, 1943
73. **Juncales** Dumortier, 1829
Cyperales Burnett, 1835
74. **Poales** Burnett, 1835
Graminales Dumortier, 1829
Avenales Bromhead, 1838
Restionales Perleb, 1838

NOTES

[1] The later Magnoliales (1838) is adopted over Laurales (1826) according to the principle of autonymy.

[2] The later Rafflesiales (1895) is adopted over Cytinales (1829) according to the principle of autonymy.

[3] The later Theales (1833) is adopted over the earlier Hypericales (1829) and Nepenthales (1829) according to the principle of autonymy.

[4] Brassicales (1838) is adopted over Resedales (1829) as Brassicales is considered to be an alternative name for the descriptive ordinal name, Cruciferae proposed by Perleb in 1826.

[5] Rutales (1826) is retained over the earlier Papilionales (1802) according to the principle of autonymy.

[6] Thorne used Betulales (1835), a later name than Corylales (1829), but as he did not accept Corylaceae, this name being rejected if combined with Betulaceae (App. IIB; Greuter *et al.* 1988), Betulales is retained.

[7] Saxifragales (1829) is retained, rather than Sedales (1828) because Thorne did not accept Sedaceae.

[8] Podostemales (1833) is retained, rather than Marathrales (1829) because Thorne did not accept Marathraceae.

[9] Aralianae (1967) has priority over Cornanae (1992), the name adopted by Thorne.

[10] Brexiales (1833) has priority over Hydrangeales (1943), the name adopted by Thorne.

[11] Asterales (1833) is adopted, rather than Ambrosiales (1829), according to the principle of autonymy and because Asteraceae is conserved over Ambrosiaceae (App. IIB; Greuter *et al.* 1988).

[12] Lamianae (1967) has priority over Gentiananae (1992), the name adopted by Thorne.

[13] Lamiales (1838) is adopted over other competing names proposed in 1829 as Lamiales is an autonym of Lamianae. It may also be retained because Lamiales is an alternative name for the descriptive ordinal name, Labiatae, proposed by Dumortier in 1829. In any case, Scrophulariales (1833), adopted by Thorne, is a latter name.

[14] Asparagales (1838) is retained, rather than Asteliales (1829) because Thorne did not accept Asteliaceae.

[15] Taccales (1829) has priority over both Smilacales (1833) and Dioscoreales (1876). The latter name was adopted by Thorne.

[16] The later Alismatales (1829) is adopted over Najadales (1828) according to the principle of autonymy.

[17] Arecales (1840) is adopted over Phoenicales (1835) because Arecales is considered to be an alternative name for the descriptive ordinal name, Palmae, proposed by Perleb in 1826, and Phoenicaceae was not accepted by Thorne.

[18] Cannales (1829) has priority over Zingiberales (1854), the name adopted by Thorne, as does Musales (1835).

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A SPLITTER'S GUIDE TO THE HIGHER TAXA OF THE FLOWERING PLANTS (MAGNOLIOPHYTA) GENERALLY ARRANGED TO FOLLOW THE SEQUENCE PROPOSED BY THORNE (1992) WITH CERTAIN MODIFICATIONS

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ABSTRACT

Using the most recent system of classification for flowering plants (Magnoliophyta) proposed by Thorne (1992b) and generally following his sequence of names but with the addition of the family names now in current use, a family system is proposed that purposefully splits the subclasses, superorders, orders, and families into small units thereby constructing a "splitter's" guide to the higher taxa of Magnoliophyta. The resulting classification recognizes 14 subclasses, 63 superorders, 248 orders, and 685 families.

KEY WORDS: Magnoliophyta, nomenclature, classification.

INTRODUCTION

Since 1959, considerable attention has been given to the classification of the flowering plants, with a large number of taxa recognized (Bedell & Reveal 1982a, b; Benson 1957; Boivin 1956; Brummitt 1992; Cronquist 1957, 1961, 1968, 1981, 1988; Cronquist *et al.* 1966; G. Dahlgren 1989a, b; R. Dahlgren 1975, 1980, 1983; R. Dahlgren & Bremer 1985; R. Dahlgren & Clifford 1982; R. Dahlgren *et al.* 1981, 1985; Deyl 1955; Dostál 1957; Ehrendorfer 1983; Engler 1964; Erdtman 1952, 1966; Gibbs 1974; Goldberg 1986, 1989; Gunn *et al.* 1992; Heywood 1978; Huber 1969; Hutchinson 1959, 1969, 1973; Kimura 1953, 1956; Mabberley 1987; Novák 1954, 1961; Pulle 1952; Rouleau 1981; Soó 1953, 1961, 1967; Stebbins, 1974; Takhtajan 1959, 1970, 1973, 1980, 1983, 1985, 1986, 1987; Thorne 1974, 1976, 1977, 1981, 1983, 1992a, 1992b; Willis 1973). Concomitant with this attention has been the realization that botanical

nomenclature ought to be stabilized as much as possible insofar as nomenclatural matters are concerned. As a result, the botanical community is now considering the concept of "names in current use" (NCU), and to that end, lists of proposed names have been circulated for comment in anticipation of a formal publication of protected names in early 1993.

My own efforts on this task have concentrated on vascular plant family names in collaboration with Dr. Ruurd D. Hoogland of the Laboratoire de Phanérogamie, Muséum National d'Histoire naturelle in Paris. To ascertain the taxonomic impact of protecting family names, we have worked closely with Richard K. Brummitt (K), the late Arthur Cronquist (NY), Aaron Goldberg (US), Armen L. Takhtajan (LE), Robert F. Thorne (RSA), and John Wiersema (USDA). To that end we have been able to resolve potential nomenclatural conflicts. The need to resolve the nomenclatural morass above the rank of family is no less important than that at the family rank and below, and while priority is not required above the rank of family, the need to have validly published names is mandated (Reveal 1992a, 1992b, 1993) and the need for a stabilized nomenclature even at these higher ranks is gradually being recognized.

In the following summary of the flowering plants (Magnoliophyta), I have adopted the general scheme proposed by Thorne (1992b), and included therein all of the proposed NCU family names. To this I have added class, subclass, superordinal, and ordinal names. I have adopted 1966 as the starting date for subclass and superordinal names, and 1789 as the starting date for ordinal and family names. To Thorne's linear arrangement of superorders, orders and families, I have added the rank of subclass used by Cronquist (1981) and Takhtajan (1987). Furthermore, as the family list accounts for all family names now in current use, I have also attempted to include all subclass, superordinal, and ordinal names now in current use. The philosophy behind the application of priority to these higher names is outlined elsewhere (Reveal 1993).

The consequences of adopting, or not adopting, the proposal put forth by Greuter (1991) regarding "names in current use" (NCU) are not all that serious insofar as flowering plant family names because so many of these names are already protected (Reveal & Hoogland, 1991). Conservation, as traditionally applied to flowering plant family names, has been to ensure that certain names are used instead of others, but not authorship or place of publication. Greuter's proposal would now protect the bibliographic information as well. Should the NCU proposals fail, we will have to editorially correct the authorship and/or bibliographic references of nearly 125 currently conserved family names on Appendix IIB of the *Code* (Greuter *et al.* 1988). And, as may be seen from the catalogue below, if the NCU proposals fail there will be a need to conserve at least ten additional names just to retain certain nonconserved names now in current use.

CATALOGUE OF THE HIGHER TAXA OF MAGNOLIOPHYTA

Magnoliophyta Cronquist, Takhtajan, & Zimmermann, 1966

Magnoliopsida Cronquist, Takhtajan, & Zimmermann, 1966
I. Magnoliidae Novák *ex* Takhtajan, 1967
A. Magnolianae Takhtajan, 1967
1. Winterales A.C. Smith *ex* Reveal
1. Winteraceae R. Brown *ex* Lindley, 1830, *nom. cons.*
2. Takhtajaniaceae (J. Leroy) J. Leroy, 1980
2. Illiciales H.-H. Hu *ex* Cronquist, 1981
3. Illiciaceae (Candolle) A.C. Smith, 1947, *nom. cons.*
4. Schisandraceae Blume, 1830, *nom. cons.*
3. Magnoliales Bromhead, 1837
5. Magnoliaceae A.L. Jussieu, 1789, *nom. cons.*
6. Liriodendraceae Barkley, 1975
7. Degeneriaceae I. Bailey & A.C. Smith, 1942, *nom. cons.*
8. Himantandraceae Diels, 1917, *nom. cons.*
4. Eupomatiales Takhtajan *ex* Reveal, 1992
9. Eupomatiaceae Endlicher, 1841, *nom. cons.*
5. Annonales Lindley, 1833
10. Annonaceae A.L. Jussieu, 1789, *nom. cons.*
Hornschuchiaceae J. Agardh, 1858
Monodoraceae J. Agardh, 1858
6. Aristolochiales Dumortier, 1829
Asarales Burnett, 1835
11. Aristolochiaceae A.L. Jussieu, 1789, *nom. cons.*
Asaraceae Ventenat, 1799
12. Myristicaceae R. Brown, 1810, *nom. cons.*
7. Canellales Cronquist, 1957
13. Canellaceae C. Martius, 1832, *nom. cons.*
Winteranaceae Warburg, 1895
8. Austrobaileyales Takhtajan *ex* Reveal, 1992
14. Austrobaileyaceae (Croizat) Croizat, 1943, *nom. cons.*
9. Monimiales Dumortier, 1829
15. Amborellaceae Pichon, 1948, *nom. cons.*
16. Trimeniaceae (Janet R. Perkins & Gilg) Gibbs, 1917, *nom. cons.*
17. Hortoniaceae (Janet R. Perkins) A.C. Smith, 1971
18. Monimiaceae A.L. Jussieu, 1809, *nom. cons.*
19. Atherospermataceae R. Brown, 1814
20. Siparunaceae (A. de Candolle) Schodde, 1970
21. Gomortegaceae Reiche, 1896, *nom. cons.*
10. Calycanthales C. Martius, 1835
22. Idiospermaceae S.T. Blake,

1972
23. Calycanthaceae Lindley, 1819, *nom. cons.*
Chimonanthaceae Perleb, 1838
Butneriaceae Barnhart, 1895, *nom. illeg.*
11. Laurales Perleb, 1826
24. Lauraceae A.L. Jussieu, 1789, *nom. cons.*
Perseaceae Horaninow, 1834
25. Cassythaceae Bartling *ex* Lindley, 1833, *nom. cons.*
26. Hernandiaceae Blume, 1826, *nom. cons.*
Illigeraceae Blume, 1833
12. Gyrocarpales Dumortier, 1829
27. Gyrocarpaceae Dumortier, 1829.
13. Chloranthales Conzatti & L.C. Smith *ex* Reveal, 1992
28. Chloranthaceae Blume, 1827, *nom. cons.*
Hedyosmaceae Caruel, 1881
14. Lactoridales Takhtajan *ex* Reveal, 1992
29. Lactoridaceae Engler, 1888, *nom. cons.*
15. Piperales Dumortier, 1829
30. Saururaceae Richard *ex* E. Meyer, 1927, *nom. cons.*
31. Piperaceae C. Agardh, 1824, *nom. cons.*
32. Peperomiaceae A.C. Smith, 1981
B. Nelumbonanae Takhtajan *ex* Reveal, 1992
16. Ceratophyllales Bischoff, 1840
33. Ceratophyllaceae Gray, 1821, *nom. cons.*
17. Nelumbonales Burnett, 1835
34. Nelumbonaceae (Candolle) Dumortier, 1829, *nom. cons.*
C. Nymphaeanae Thorne *ex* Reveal, 1992
18. Nymphaeales Dumortier, 1829
Euryalales H.L. Li, 1955
35. Cabombaceae A. Richard, 1828, *nom. cons.*
Hydropeltidaceae (Candolle) Dumortier, 1822
36. Nymphaeaceae R.A. Salisbury, 1805, *nom. cons.*
37. Euryalaceae J. Agardh, 1858.
38. Barclayaceae H.L. Li, 1955
D. Rafflesianae Thorne *ex* Reveal, 1992
19. Hydnorales Takhtajan *ex* Reveal, 1992
39. Hydnoraceae C. Agardh, 1821, *nom. cons.*
20. Mitrastemonales Makino, 1911
40. Mitrastemonaceae Makino, 1911, *nom. cons.*
21. Rafflesiales Oliver, 1895
Cytinales Dumortier, 1829
41. Cytinaceae (Brongniart) A. Richard, 1824
42. Apodanthaceae (R. Brown) Tieghem *ex* Takhtajan, 1987
43. Rafflesiaceae Dumortier, 1829, *nom. cons.*
II. Ranunculidae Takhtajan *ex* Reveal, 1992
E. Ranunculanae Takhtajan *ex* Reveal, 1992
22. Paeoniales Heintze, 1927
44. Paeoniaceae F. Rudolphi, 1830, *nom. cons.*
23. Glaucidiales Takhtajan *ex* Reveal, 1992
45. Glaucidiaceae Tamura, 1972
24. Menispermales Bromhead, 1838

46. Menispermaceae A.L. Jussieu, 1789, *nom. cons.*
Pseliaceae Rafinesque, 1838
47. Lardizabalaceae Decaisne, 1839, *nom. cons.*
48. Sargentodoxaceae Stapf *ex* Hutchinson, 1926, *nom. cons.*

25. Podophyllales Dumortier, 1829
49. Podophyllaceae Candolle, 1821, *nom. cons.*
Diphylleiaceae Schultz-Schultzenstein, 1832
50. Leonticaceae Berchtold & J. Presl, 1820

26. Berberidales Dumortier, 1829
51. Berberidaceae A.L. Jussieu, 1789, *nom. cons.*
52. Nandinaceae Horaninow, 1834.

27. Ranunculales Dumortier, 1829
Helleborales Nakai, 1949)
53. Hydrastidaceae Martinov, 1820.
54. Thalictraceae Rafinesque, 1815
55. Ranunculaceae A.L. Jussieu, 1789, *nom. cons.*
Anemonaceae Vest, 1818
Clematidaceae Martinov, 1820
56. Helleboraceae Vest, 1818
Calthaceae Martinov, 1820
Actaeaceae Rafinesque, 1828
Nigellaceae J. Agardh, 1858
57. Circaeasteraceae Hutchinson, 1926, *nom. cons.*
58. Kingdoniaceae A.S. Foster *ex* Airy Shaw, 1965

28. Papaverales Dumortier, 1829
59. Chelidoniaceae Martinov, 1820
60. Eschscholtziaceae Seringe, 1847
61. Papaveraceae A.L. Jussieu, 1789, *nom. cons.*
62. Platystemonaceae (W.R. Ernst) A.C. Smith, 1971
63. Pteridophyllaceae (Murbeck) Nakai *ex* Reveal & Hoogland, 1991
64. Hypecoaceae H.M. Willkomm & J.M.C. Lange, 1880
65. Fumariaceae Candolle, 1821, *nom. cons.*
Corydalaceae Giseke, 1792, *nom. illeg.*

III. Caryophyllidae Takhtajan, 1967
F. Caryophyllanae Takhtajan, 1967
29. Caryophyllales Perleb, 1826
Scleranthales Dumortier, 1829
Silenales Lindley, 1833
Dianthales Burnett, 1835
66. Alsinaceae (Candolle) Bartling, 1825, *nom. cons.*
Stellariaceae Dumortier, 1822
67. Illecebraceae R. Brown, 1810, *nom. cons.*
Paronychiaceae A.L. Jussieu, 1815
Scleranthaceae Berchtold & J. Presl, 1820
Herniariaceae Martinov, 1820
68. Caryophyllaceae A.L. Jussieu, 1789, *nom. cons.*
Cerastiaceae Vest, 1818
Dianthaceae Vest, 1818
Ortegaceae Martinov, 1820
Telephiaceae Martinov, 1820
Saginaceae Sprengel *ex* Weinmann, 1824
Silenaceae (Candolle) Bartling, 1825

30. Portulacales Dumortier, 1829
69. Portulacaceae A.L. Jussieu, 1789, *nom. cons.*

Montiaceae Rafinesque, 1820
70. Hectorellaceae Philipson & Skipworth, 1961
71. Basellaceae Moquin-Tandon, 1840, *nom. cons.*
Anrederaceae J. Agardh, 1858
Ullucaceae Nakai, 1942
72. Didiereaceae Drake, 1903, *nom. cons.*
31. Cactales Dumortier, 1829
Opuntiales Willkomm, 1854
73. Cactaceae A.L. Jussieu, 1789, *nom. cons.*
Opuntiaceae Martinov, 1820
Cereaceae Candolle & Sprengel, 1821
32. Nyctaginales Dumortier, 1829
Petiveriales Lindley, 1833
74. Phytolaccaceae R. Brown, 1818, *nom. cons.*
Sarcocaceae Rafinesque, 1837
75. Gisekiaceae (Endlicher) Nakai, 1942
76. Petiveriaceae C. Agardh, 1824
Rivinaceae C. Agardh, 1824
Hilleriaceae Nakai, 1942
Seguieriaceae Nakai, 1942
77. Agdestidaceae Nakai, 1942
78. Barbeuiaceae Nakai, 1942
79. Achatocarpaceae Heimerl, 1934, *nom. cons.*
80. Stegnospermataceae (A. Richard) Nakai, 1942
81. Nyctaginaceae A.L. Jussieu, 1789, *nom. cons.*
Jalapaceae Batsch, 1802
Allioniaceae Horaninow, 1834
Bougainvilleaceae J. Agardh, 1858
Pisoniaceae J. Agardh, 1858
Mirabilidaceae W. Oliver, 1936
82. Aizoaceae F. Rudolphi, 1830, *nom. cons.*
Ficoideaceae A.L. Jussieu, 1789
Galeniaceae Rafinesque, 1819
Sesuviaceae Horaninow, 1834
83. Mesembryanthemaceae Fenzl 1836
Mesembryaceae Dumortier, 1829 *nom. illeg.*
84. Tetragoniaceae Nakai, 1942, *nom. cons.*
85. Halophytaceae Soriano, 1984
86. Molluginaceae Hutchinson, 1926, *nom. cons.*
Pharnaceaceae Martinov, 1820
Corrigiolaceae (Dumortier) Dumortier, 1829
Glinaceae Dumortier, 1829
Adenogrammaceae (Fenzl) Nakai 1942
Polpodaceae (Fenzl) Nakai, 1942
33. Chenopodiales Dumortier, 1829
Atriplicales Horaninow, 1847
87. Dysphaniaceae Pax, 1927, *nom. cons.*
88. Chenopodiaceae Ventenat, 1799, *nom. cons.*
Atriplicaceae A.L. Jussieu, 1789
Corispermaceae Link, 1829
Betaceae Burnett, 1835
Blitaceae Adanson *ex* Post & Kuntze, 1903
89. Salicorniaceae Martinov, 1820
90. Salsolaceae Moquin-Tandon, 1849
34. Amaranthales Dumortier, 1829
91. Amaranthaceae A.L. Jussieu, 1789, *nom. cons.*
Celosiaceae Martinov, 1820
Achyranthaceae Rafinesque, 1837

Gomphrenaceae Rafinesque, 1837
Deeringiaceae J. Agardh, 1858
IV. Dilleniidae Takhtajan *ex* Reveal & Takhtajan, 1993
G. Dillenianae Takhtajan *ex* Reveal & Takhtajan, 1993
35. Dilleniales Hutchinson, 1924
92. Dilleniaceae R.A. Salisbury, 1807, *nom. cons.*
Soramiaceae Martinov, 1820
Hibbertiaceae J. Agardh, 1858
36. Actinidiales Takhtajan *ex* Reveal, 1992
93. Actinidiaceae Hutchinson, 1926, *nom. cons.*
94. Saurauiaceae J. Agardh, 1858, *nom. cons.*
37. Paracryphiales Takhtajan *ex* Reveal, 1992
95. Paracryphiaceae Airy Shaw, 1965
H. Theanae Thorne *ex* Reveal, 1992
38. Theales Lindley, 1833
Camelliales Burnett, 1835
96. Stachyuraceae J. Agardh, 1858, *nom. cons.*
97. Theaceae D. Don, 1825, *nom. cons.*
Camelliaceae Candolle, 1816
Ternstroemiaceae Mirbel *ex* Candolle, 1816
Gordoniaceae (Candolle) Sprengel, 1826
Malachodendraceae J. Agardh, 1858, *nom. illeg.*
98. Sladeniaceae (Gilg & Werdermann) Airy Shaw, 1965
99. Asteropeiaceae (Szyszylowicz) Takhtajan *ex* Reveal & Hoogland, 1990.
100. Tetrameristaceae Hutchinson, 1959
101. Pellicieraceae (Triana & Planchon) L. Beauvisage *ex* Bullock, 1959
102. Chrysobalanaceae R. Brown, 1818, *nom. cons.*
Licaniaceae Martinov, 1820
Hirtellaceae Horaninow, 1847
103. Symplocaceae Desfontaines, 1820, *nom. cons.*
104. Caryocaraceae Szyszylowicz, 1893, *nom. cons.*
Rhizobolaceae Candolle, 1824, *nom. illeg.*
105. Marcgraviaceae Choisy, 1824, *nom. cons.*
106. Oncothecaceae Kobuski *ex* Airy Shaw, 1965
39. Aquifoliales Senft, 1856
107. Aquifoliaceae Bartling, 1830, *nom. cons.*
Illicaceae Berchtold & J. Presl, 1820
108. Phellinaceae (Loesener) Takhtajan, 1967
109. Sphenostemonaceae P. Royen & Airy Shaw, 1972
40. Ochnales Hutchinson *ex* Reveal, 1992
110. Lophiraceae Loudon, 1830
111. Sauvagesiaceae (Gingins *ex* Candolle) Dumortier, 1829
112. Ochnaceae Candolle, 1811, *nom. cons.*
Gomphiaceae Candolle *ex* Schnizlein, 1843-1870
Luxemburgiaceae Tieghem *ex* Solereder, 1908
113. Quiinaceae Choisy *ex* Engler, 1888, *nom. cons.*
114. Scytopetalaceae Engler, 1897, *nom. cons.*
Rhaptopetalaceae Tieghem *ex* Solereder, 1908
115. Strasburgeriaceae En-

gler & Gilg, 1924, *nom. cons.*
41. Medusagynales Brenan, 1952
116. Medusagynaceae Engler & Gilg, 1924, *nom. cons.*
42. Ancistrocladales Takhtajan *ex* Reveal, 1992
117. Ancistrocladaceae Planchon *ex* Walpers, 1851, *nom. cons.*
43. Dioncophyllales Takhtajan *ex* Reveal, 1993
118. Dioncophyllaceae (Gilg) Airy Shaw, 1952, *nom. cons.*
44. Hypericales Dumortier, 1829
119. Bonnetiaceae (Bartling) L. Beauvisage *ex* Nakai, 1948
120. Clusiaceae Lindley, 1836, *nom. cons.*
Guttiferae A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
Garciniaceae Bartling, 1830
Cambogiaceae Horaninow, 1834
Calophyllaceae J. Agardh, 1858
121. Hypericaceae A.L. Jussieu, 1789, *nom. cons.*
Ascyraceae Plenck, 1796
45. Elatinales Nakai, 1949
122. Elatinaceae Dumortier, 1829, *nom. cons.*
Cryptaceae Rafinesque, 1820
Alsinastraceae Ruprecht *ex* Bubani, 1901
I. Nepenthanae Takhtajan *ex* Reveal, 1992
46. Nepenthales Dumortier, 1829
123. Nepenthaceae Dumortier, 1829, *nom. cons.*
J. Lecythidanae Takhtajan *ex* Reveal, 1992
47. Lecythidales Cronquist, 1957
124. Barringtoniaceae F. Rudolphi, 1830, *nom. cons.*
125. Foetidaceae (Nidenzu) Airy Shaw, 1965
126. Napoleonaeaceae A. Richard, 1827
Belvisiaceae R. Brown, 1821, *nom. illeg.*
127. Lecythidaceae Poiteau, 1825, *nom. cons.*
Gustaviaceae Burnett, 1835
128. Asteranthaceae Knuth, 1939, *nom. cons.*
K. Sarracenianae Thorne *ex* Reveal, 1992
48. Sarraceniales Bromhead, 1838
129. Sarraceniaceae Dumortier, 1829, *nom. cons.*
129a. Heliamphoraceae Chrtak, Slavíková, & Studicka, 1992
L. Ericanae Takhtajan, 1967
49. Ericales Dumortier, 1829
Vacciniales Dumortier, 1829
130. Pentaphylacaceae Engler, 1897, *nom. cons.*
131. Clethraceae Klotzsch, 1851, *nom. cons.*
132. Cyrillaceae Endlicher, 1841, *nom. cons.*
133. Ericaceae A.L. Jussieu, 1789, *nom. cons.*
Rhododendraceae A.L. Jussieu, 1789
Rhodoraceae Ventenat, 1799
Azaleaceae Vest, 1818
Ledaceae Link, 1821
Menziesiaceae Klotzsch, 1851
Salaxidaceae J. Agardh, 1858
Diplarchaceae Klotzsch, 1860
134. Vacciniaceae Candolle *ex* Gray, 1821, *nom. cons.*
Andromedaceae (Endlicher) Schnizlein, 1843-1870
Siphonandraceae Klotzsch, 1851, *nom. illeg.*
Arbutaceae J. Agardh, 1858

Arctostaphylaceae J. Agardh, 1858
135. Pyrolaceae Dumortier, 1829, *nom. cons.*
136. Monotropaceae Nuttall, 1818, *nom. cons.*
Hypopityaceae Link, 1829
137. Epacridaceae R. Brown, 1810, *nom. cons.*
Stypheliaceae Horaninow, 1834
138. Prionotaceae Hutchinson, 1969
50. Empetrales Nakai, 1930
139. Empetraceae Gray, 1821, *nom. cons.*
51. Fouquieriales Takhtajan *ex* Reveal, 1992
140. Fouquieriaceae Candolle, 1828, *nom. cons.*
52. Ebenales Engler, 1892
Diospyrales Prantl, 1874
141. Ebenaceae Gürcke, 1891, *nom. cons.*
Guaiacanaceae A.L. Jussieu, 1789
Diospyraceae Vest, 1818
142. Lissocarpaceae Gilg, 1924, *nom. cons.*
53. Styracales Burnett, 1835
143. Styracaceae Dumortier, 1829, *nom. cons.*
Halesiaceae D. Don, 1828
54. Sapotales J.D. Hooker, 1868
144. Sapotaceae A.L. Jussieu, 1789, *nom. cons.*
Achradaceae Vest, 1818
Bumeliaceae Barnhart, 1895
145. Boerlagellaceae H.J. Lam, 1925
146. Sarcospermataceae H.J. Lam, 1925, *nom. cons.*
M. Primulanae R. Dahlgren *ex* Reveal, 1992
55. Myrsinales Bromhead, 1838
147. Theophrastaceae Link, 1829, *nom. cons.*
148. Myrsinaceae R. Brown, 1810, *nom. cons.*
Ardisiaceae A.L. Jussieu, 1810
Embeliaceae J. Agardh, 1858
149. Aegicerataceae Blume, 1833
56. Primulales Dumortier, 1829
Samolales Dumortier, 1829
150. Primulaceae Ventenat, 1799, *nom. cons.*
Lysimachiaceae A.L. Jussieu, 1789
Anagallidaceae Batsch *ex* Borckhausen, 1797
Samolaceae Rafinesque, 1820
151. Coridaceae J. Agardh, 1858
N. Plumbaginanae Takhtajan *ex* Reveal, 1992
57. Plumbaginales Lindley, 1833
152. Plumbaginaceae A.L. Jussieu, 1789, *nom. cons.*
153. Aegialitidaceae Linczevski, 1968
154. Limoniaceae Seringe, 1851, *nom. cons. prop.*
Staticaceae Cassel, 1817
Armeriaceae Horaninow, 1834
O. Polygonanae Takhtajan *ex* Reveal, 1992
58. Polygonales Dumortier, 1829
155. Polygonaceae A.L. Jussieu, 1789, *nom. cons.*
Rumicaceae Martinov, 1820
Eriogonaceae (Dumortier) Meisner, 1841
Persicariaceae Adanson *ex* Post & Kuntze, 1903
156. Calligonaceae Chalkuziev, 1985
P. Celastranae Takhtajan, 1967

59. Celastrales Baskerville, 1839
157. Celastraceae R. Brown, 1814, *nom. cons.*
Euonymaceae A.L. Jussieu *ex* Berchtold & J. Presl, 1820
Chingithamnaceae Handel-Mazzetti, 1932
158. Canotiaceae Airy Shaw, 1965
159. Hippocrateaceae A.L. Jussieu, 1811, *nom. cons.*
Salaciaceae Rafinesque, 1838
160. Siphonodontaceae (Croizat) Gagnepain & Tardieu *ex* Tardieu, 1951, *nom. cons.*
161. Pottingeriaceae (Engler) Takhtajan, 1987
162. Goupiaceae Miers, 1862
163. Lophopyxidaceae (Engler) H. Pfeiffer, 1951
164. Stackhousiaceae R. Brown, 1814, *nom. cons.*

Q. Malvanae Takhtajan, 1967
60. Malvales Dumortier, 1829
Tiliales Hutchinson, 1924
165. Sterculiaceae (Candolle) Bart-ling, 1830, *nom. cons.*
Triplobaceae Rafinesque, 1838
166. Byttneriaceae R. Brown, 1814, *nom. cons.*
Hermanniaceae Berchtold & J. Presl, 1820
Lasiopetalaceae Reichenbach, 1823
Dombeyaceae (Candolle) Bartling, 1830
Fremontiaceae J. Agardh, 1858
Helicteraceae J. Agardh, 1858
Melochiaceae J. Agardh, 1858
Theobromataceae J. Agardh, 1858
Chiranthodendraceae A. Gray, 1887
Cacaoaceae Augier *ex* Post & Kuntze, 1903
167. Huaceae A. Chevalier, 1947
168. Elaeocarpaceae A.L. Jussieu *ex* Candolle, 1824, *nom. cons.*
Aristoteliaceae Dumortier, 1829
169. Plagiopteraceae Airy Shaw, 1965
170. Tiliaceae A.L. Jussieu, 1789, *nom. cons.*
Sparmanniaceae J. Agardh, 1858
171. Monotaceae (Gilg) Maury *ex* Takhtajan, 1987.
172. Dipterocarpaceae Blume, 1825, *nom. cons.*
173. Sarcolaenaceae Caruel, 1881, *nom. cons.*
Schizolaenaceae Barnhart, 1895
Rhodolaenaceae Bullock, 1958
174. Diegodendraceae Capuron, 1964
175. Sphaerosepalaceae Tieghem *ex* Bullock, 1959
Rhopalocarpaceae Hemsley *ex* Takhtajan, 1987
176. Bombacaceae Kunth, 1822, *nom. cons.*
177. Malvaceae A.L. Jussieu, 1789, *nom. cons.*
Philippodendraceae Endlicher, 1841
Fugosiaceae Martinov, 1820, *nor illeg.*
Hibiscaceae J. Agardh, 1858
Plagianthaceae J. Agardh, 1858

R. Urticanae Takhtajan *ex* Reveal, 1992
61. Ulmales Lindley, 1833
Ficales Dumortier, 1829
178. Ulmaceae Mirbel, 1815, *nom. cons.*
179. Celtidaceae Link, 1831
180. Moraceae Link, 1831,

nom. cons.
Artocarpaceae R. Brown, 1818
Dorsteniaceae Chevallier, 1827
Ficaceae (Dumortier) Dumortier, 1829
181. Cecropiaceae C.C. Berg, 1978
62. Urticales Dumortier, 1829
182. Urticaceae A.L. Jussieu, 1789, *nom. cons.*
183. Cannabaceae Endlicher, 1837, *nom. cons.*
Lupulaceae Link, 1829
63. Barbeyales Takhtajan *ex* Reveal & Takhtajan, 1993
184. Barbeyaceae Rendle, 1916, *nom. cons.*
S. Rhamnanae Takhtajan *ex* Reveal, 1992
64. Rhamnales Dumortier, 1829
185. Rhamnaceae A.L. Jussieu, 1789, *nom. cons.*
Frangulaceae Candolle, 1805
Gouaniaceae Rafinesque, 1837
Phylicaceae J. Agardh, 1858
Ziziphaceae Adanson *ex* Post & Kuntze, 1903
65. Elaeagnales Bromhead, 1838
186. Elaeagnaceae A.L. Jussieu, 1789, *nom. cons.*
Hippophaeaceae G. Meyer, 1836
C. Euphorbianae Takhtajan *ex* Reveal, 1992
66. Euphorbiales Lindley, 1833
Crotonales Horaninow, 1847
187. Euphorbiaceae A.L. Jussieu, 1789, *nom. cons.*
Tithymalaceae Ventenat, 1799
Mercurialaceae Martinov, 1820
Ricinaceae Martinov, 1820
Trewiaceae Lindley, 1836
Tragiaceae Rafinesque, 1838
Acalyphaceae J. Agardh, 1858
Bertyaceae J. Agardh, 1858
Crotonaceae J. Agardh, 1858
Hippomanaceae J. Agardh, 1858
Ricinocarpaceae (Müller arg.) Hurusawa, 1954
188. Phyllanthaceae J. Agardh, 1858
Scepaceae Lindley, 1836
Aporusaceae Lindley *ex* Miquel, 1859
Porantheraceae (Pax) Hurusawa, 1954
189. Picrodendraceae J.K. Small *ex* Britton & Millspaugh, 1920, *nom. cons.*
Pseudanthaceae Endlicher, 1839
Micrantheaceae J. Agardh, 1858
Paivaeusaceae Meeuse, 1990
190. Androstachyaceae Airy Shaw, 1965
191. Bischofiaceae (Müller arg.) Airy Shaw, 1965
192. Hymenocardiaceae Airy Shaw, 1965
193. Peraceae Klotzsch, 1859
194. Putranjivaceae Endlicher, 1841
195. Stilaginaceae J. Agardh, 1824
Antidesmataceae Loudon, 1830
196. Uapacaceae (Müller arg.) Airy Shaw, 1965
67. Pandales Engler & Gilg, 1912-1913
197. Pandaceae Engler & Gilg, 1913, *nom. cons.*
Bennettiaceae R. Brown *ex* Schnizlein, 1843-1870, *nom. illeg.*
198. Dichapetalaceae Baillon, 1886, *nom. cons.*
Chailletiaceae R. Brown, 1818
68. Simmondsiales Reveal, 1992
199. Simmondsiaceae (Müller

arg.) Tieghem *ex* Reveal & Hoogland, 1990.
69. Thymelaeales Willkomm, 1854
Daphnales Lindley, 1833
200. Gonystylaceae Gilg, 1897, *nom. cons.*
201. Aquilariaceae R. Brown, 1818
202. Thymelaeaceae A.L. Jussieu, 1789, *nom. cons.*
Daphnaceae Ventenat, 1799
Phaleriaceae Meisner, 1841
U. Violanae R. Dahlgren *ex* Reveal, 1992
70. Cistales H.G.L. Reichenbach, 1828
Bixales Lindley, 1833
203. Bixaceae Link, 1831, *nom. cons.*
204. Cochlospermaceae Planchon, 1847, *nom. cons.*
205. Cistaceae A.L. Jussieu, 1789, *nom. cons.*
Helianthemaceae G. Meyer, 1836
71. Violales Perleb, 1826
206. Violaceae Batsch, 1802, *nom. cons.*
Ionidiaceae Mertens & Koch, 1823
Leoniaceae A. de Candolle, 1844
Alsodeiaceae J. Agardh, 1858
72. Samydales Dumortier, 1829
Homaliales Bromhead, 1838
Flacourtiales Heintze, 1927
207. Berberidopsidaceae (Veldkamp) Takhtajan, 1985.
208. Aphloiaceae Takhtajan, 1985
209. Flacourtiaceae Richard *ex* Candolle, 1824, *nom. cons.*
Prockiaceae Bertuch, 1801
Homaliaceae R. Brown, 1818
210. Samydaceae Ventenat, 1808, *nom. cons.*
Blakwelliaceae Lestiboudois, 1826, *nom. illeg.*
211. Kiggellariaceae Link, 1831
Pangiaceae Endlicher, 1841
73. Lacistematales Baskerville, 1839
212. Lacistemataceae C. Martius, 1826, *nom. cons.*
213. Dipentodontaceae Merrill, 1941, *nom. cons.*
214. Peridiscaceae Kuhlmann, 1950, *nom. cons.*
215. Scyphostegiaceae Hutchinson, 1926, *nom. cons.*
74. Passiflorales Dumortier, 1829
216. Passifloraceae A.L. Jussieu *ex* Kunth, 1817, *nom. cons.*
Paropsiaceae Dumortier, 1829
Smeathmanniaceae C. Martius *ex* Perleb, 1838
Modeccaceae Horaninow, 1847
217. Malesherbiaceae D. Don, 1827, *nom. cons.*
218. Achariaceae H. Harms, 1897, *nom. cons.*
75. Turnerales Dumortier, 1829
219. Turneraceae Kunth *ex* Candolle, 1828, *nom. cons.*
Piriquetaceae Martinov, 1820
76. Caricales L. Benson, 1957
220. Caricaceae Dumortier, 1829, *nom. cons.*
Papayaceae Blume, 1823, *nom. illeg.*
77. Salicales Lindley, 1833
221. Salicaceae Mirbel, 1815, *nom. cons.*
78. Tamaricales Hutchinson, 1924
222. Tamaricaceae Link, 1821, *nom. cons.*
Reaumuriaceae Ehrenberg *ex* Lindley, 1830

223. Frankeniaceae A. de Saint-Hilaire *ex* Gray, 1821, *nom. cons.*

79. Cucurbitales Dumortier, 1829
224. Cucurbitaceae A.L. Jussieu, 1789, *nom. cons.*
Nhandirobaceae Lestiboudois, 1826
Zanoniaceae Dumortier, 1829
Bryoniaceae G. Meyer, 1836

80. Begoniales Dumortier, 1829
225. Begoniaceae J. Agardh, 1824, *nom. cons.*

81. Datiscales Dumortier, 1829
226. Datiscaceae R. Brown *ex* Lindley, 1830, *nom. cons.*
227. Tetramelaceae (Warburg) Airy Shaw, 1965

82. Resedales Dumortier, 1829
228. Resedaceae Candolle *ex* Gray, 1821, *nom. cons.*
Astrocarpaceae A. Kerner, 1891

83. Tovariales Nakai, 1943
229. Tovariaceae Pax, 1891, *nom. cons.*

84. Capparales Hutchinson, 1924
230. Pentadiplandraceae Hutchinson & Dalziel, 1928
231. Koeberliniaceae Engler, 1895, *nom. cons.*
232. Capparaceae A.L. Jussieu, 1789, *nom. cons.*
233. Cleomaceae Horaninow, 1834
234. Oxystylidaceae Hutchinson, 1969

85. Brassicales Bromhead, 1838
235. Brassicaceae Burnett, 1835, *nom. cons.*
Cruciferae A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
Drabaceae Martinov, 1820
Erysimaceae Martinov, 1820
Sisymbriaceae Martinov, 1820
Thlaspiaceae Martinov, 1820
Stanleyaceae Nuttall, 1834
Raphanaceae Horaninow, 1847

86. Salvadorales R. Dahlgren *ex* Reveal, 1992
236. Salvadoraceae Lindley, 1836, *nom. cons.*
Azimaceae Wight & Gardner, 1845
237. Gyrostemonaceae Endlicher, 1841, *nom. cons.*

87. Batales Engler, 1907
238. Bataceae C. Martius *ex* Meisner, 1842, *nom. cons.*

V. Santalanae Thorne *ex* Reveal, 1992

88. Olacales Bentham, 1862
239. Olacaceae Mirbel *ex* Candolle, 1824, *nom. cons.*
Schoepfiaceae Blume, 1850
Tetrastylidiaceae Calestani, 1905
Ximeniaceae Martinet, 1873
240. Aptandraceae Miers, 1853
241. Octoknemaceae Engler, 1909, *nom. cons.*
242. Erythropalaceae (Hasskarl) Sleumer, 1942, *nom. cons.*
243. Opiliaceae (Bentham) Valeton, 1886, *nom. cons.*
Cansjeraceae J. Agardh, 1858
244. Medusandraceae Brenan, 1952, *nom. cons.*

89. Santalales Dumortier, 1829
Anthobolales Dumortier, 1829
245. Santalaceae R. Brown, 1810, *nom. cons.*
Thesiaceae Vest, 1818
Osyridaceae Martinov, 1820
Anthobolaceae Dumortier, 1829
Canopodaceae Presl, 1851
Exocarpaceae J. Agardh, 1858

90. Loranthales Dumortier, 1829
246. Misodendraceae J. Agardh, 1858, *nom. cons.*
247. Loranthaceae A.L. Jussieu, 1808, *nom. cons.*
Elytranthaceae Tieghem *ex* Nakai, 1952
Gaiadendraceae Tieghem *ex* Nakai, 1952
Nuytsiaceae Tieghem *ex* Nakai, 1952
Psittacanthaceae Nakai, 1952
248. Eremolepidaceae Tieghem *ex* Nakai, 1952
249. Viscaceae Batsch, 1802
Phoradendraceae Karsten, 1860
Arceuthobiaceae Tieghem *ex* Nakai, 1952
Bifariaceae Nakai, 1952
Dendrophthoaceae Tieghem *ex* Nakai, 1952
Ginalloaceae Tieghem *ex* Nakai, 1952
Lepidoceratacеae Nakai, 1952
W. Balanophoranae R. Dahlgren *ex* Reveal, 1992
91. Balanophorales Dumortier, 1829
250. Mystropetalaceae J.D. Hooker, 1853
251. Dactylanthaceae (Engler) Takhtajan, 1987
252. Sarcophytaceae A. Kerner, 1891
253. Heloseaceae (Schott & End-licher) Tieghem *ex* Reveal & Hoogland, 1990
Scybaliaceae A. Kerner, 1891
254. Lophophytaceae Horaninow, 1847
255. Balanophoraceae Richard, 1822, *nom. cons.*
Langsdorffiaceae Tieghem *ex* Pilger & K. Krause, 1914
92. Cynomoriales Burnett, 1835
256. Cynomoriaceae (C. Agardh) Lindley, 1833, *nom. cons.*
V. Hamamelididae Takhtajan, 1967
X. Trochodendranae Takhtajan *ex* Reveal, 1992
93. Trochodendrales Takhtajan *ex* Cronquist, 1981
257. Trochodendraceae Prantl, 1888, *nom. cons.*
258. Tetracentraceae A.C. Smith, 1945, *nom. cons.*
94. Eupteleales H.-H. Hu *ex* Reveal, 1992
259. Eupteleaceae K. Wilhelm, 1910, *nom. cons.*
95. Cercidiphyllales H.-H. Hu *ex* Reveal, 1992
260. Cercidiphyllaceae Engler, 1909, *nom. cons.*
Y. Hamamelidanae Takhtajan, 1967
96. Hamamelidales Grisebach, 1854
261. Platanaceae Lestiboudois *ex* Dumortier, 1829, *nom. cons.*
262. Hamamelidaceae R. Brown, 1818, *nom. cons.*
Fothergillaceae Nuttall, 1818
Parrotiaceae Horaninow, 1834
Bucklandiaceae J. Agardh, 1858, *nom. illeg.*
Disanthaceae Nakai, 1943
263. Rhodoleiaceae Nakai, 1943
264. Altingiaceae Lindley, 1846, *nom. cons.*
97. Casuarinales Lindley, 1833
265. Casuarinaceae R. Brown, 1814, *nom. cons.*
98. Buxales Takhtajan *ex* Reveal, 1992
266. Buxaceae Dumortier, 1822, *nom. cons.*

Pachysandraceae J. Agardh, 1858
267. Styloceratáceae (Pax) Baillon *ex* Reveal & Hoogland, 1990
99. Didymelales Takhtajan, 1967
268. Didymelaceae Leandri, 1937
100. Daphniphyllales Pulle *ex* Cronquist, 1981
269. Daphniphyllaceae Müller arg., 1869, *nom. cons.*
101. Balanopales Engler, 1897
270. Balanopaceae Bentham, 1880, *nom. cons.*
102. Myrothamnales Nakai *ex* Reveal, 1993
271. Myrothamnaceae Niedenzu, 1891, *nom. cons.*
103. Hydrostachyales Diels *ex* Reveal, 1992
272. Hydrostachyaceae Engler, 1898, *nom. cons.*
Z. Juglandanae Takhtajan *ex* Reveal, 1992
104. Rhoipteleales Novák *ex* Reveal, 1992
273. Rhoipteleaceae Handel-Mazzetti, 1932, *nom. cons.*
105. Juglandales Dumortier, 1829
274. Juglandaceae A. Richard *ex* Kunth, 1824, *nom. cons.*
Platycaryaceae Nakai, 1930
Pterocaryaceae Nakai, 1930
106. Myricales Engler, 1897
275. Myricaceae Blume, 1829, *nom. cons., emend. prop.*
107. Corylales Dumortier, 1829
Betulales Burnett, 1835
276. Ticodendraceae Gómez-Laurito & L.D. Gómez, 1991
277. Betulaceae Gray, 1821, *nom. cons.*
278. Carpinaceae Vest, 1818
279. Corylaceae Mirbel, 1815, *nom. cons.*
108. Fagales Engler, 1892
Quercales Burnett, 1835
280. Nothofagaceae Kuprianova, 1962
281. Fagaceae Dumortier, 1829, *nom. cons.*
Quercaceae Berchtold & J. Presl
Castaneaceae Baillon, 1878
VI. Rosidae Takhtajan, 1967
AA. Geranianae Thorne *ex* Reveal, 1992
109. Linales Baskerville, 1839
282. Humiriaceae Adr. Jussieu, 1829, *nom. cons.*
283. Ctenolophonaceae (H. Winkler) Exell & Mendonça, 1951
284. Hugoniaceae Arnott, 1834
285. Ixonanthaceae (Bentham) Exell & Mendonça, 1951, *nom. cons.*
286. Linaceae Candolle *ex* Gray, 1821, *nom. cons.*
287. Erythroxylaceae Kunth, 1822, *nom. cons.*
Nectaropetalaceae (Winkler) Exell & Mendonça, 1951
288. Peganaceae (Engler) Tieghem *ex* Takhtajan, 1987
289. Tetradiclidaceae (Engler) Takhtajan, 1986
290. Tribulaceae Trautvetter, 1853
291. Zygophyllaceae R. Brown, 1814, *nom. cons.*
292. Nitrariaceae Berchtold & J. Presl, 1820
293. Balanitaceae Endlicher, 1841, *nom. cons.*
110. Rhizophorales Tieghem *ex* Reveal, 1993

294. Rhizophoraceae R. Brown, 1814, *nom. cons.*
Mangiaceae Rafinesque, 1837
Legnotidaceae Endlicher, 1841, *nom. illeg.*
Cassipoureaceae J. Agardh, 1858
Macarisiaceae J. Agardh, 1858
111. Oxalidales Heintze, 1927
295. Oxalidaceae R. Brown, 1818, *nom. cons.*
296. Averrhoaceae Hutchinson, 1959
297. Lepidobotryaceae Léonard, 1950, *nom. cons.*
298. Hypseocharitaceae Weddell, 1861
112. Geraniales Dumortier, 1829
299. Biebersteiniaceae Endlicher, 1841
300. Geraniaceae A.L. Jussieu, 1789, *nom. cons.*
Erodiaceae Horaninow, 1847
301. Dirachmaceae Hutchinson, 1959
302. Ledocarpaceae Meyen, 1834
303. Rhynchothecaceae Endlicher, 1841
304. Vivianiaceae Klotzsch, 1836
113. Balsaminales Lindley, 1833
305. Balsaminaceae A. Richard, 1822, *nom. cons.*
Hydroceraceae Blume, 1825, *nom. illeg.*
Impatientaceae Barnhart, 1895
114. Tropaeolales Takhtajan *ex* Reveal, 1992
306. Tropaeolaceae A.L. Jussieu *ex* Candolle, 1824, *nom. cons.*
Cardamindaceae Link, 1829
115. Limnanthales Nakai, 1930
307. Limnanthaceae R. Brown, 1833, *nom. cons.*
116. Malpighiales C. Martius, 1835
308. Malpighiaceae A.L. Jussieu, 1789, *nom. cons.*
117. Vochysiales Dumortier, 1829
309. Trigoniaceae Endlicher, 1841, *nom. cons.*
310. Euphroniaceae Marcano-Berti, 1989
311. Vochysiaceae A. Saint-Hilaire, 1820, *nom. cons.*
118. Polygalales Dumortier, 1829
312. Polygalaceae R. Brown, 1814, *nom. cons.*
Moutabeaceae Endlicher, 1841
313. Diclidantheraceae J. Agardh, 1858, *nom. cons.*
314. Xanthophyllaceae (Chodat) Gagnepain *ex* Reveal & Hoogland, 1990
315. Krameriaceae Dumortier, 1829, *nom. cons.*
BB. Rutanae Takhtajan, 1967
119. Rutales Perleb, 1826
Citrales Dumortier, 1829
Terebinthales Dumortier, 1829
316. Rutaceae A.L. Jussieu, 1789, *nom. cons.*
Aurantiaceae A.L. Jussieu, 1789
Citraceae Roussel, 1806
Diosmaceae R. Brown, 1814
Amyridaceae R. Brown, 1818
Dictamnaceae Vest, 1818
Zanthoxylaceae Berchtold & J. Presl, 1820
Jamboliferaceae Martinov, 1820
Fraxinellaceae Nees & C. Martius, 1823
Pteleaceae Kunth, 1824
Cuspariaceae (Candolle) Trattinnick, 1825
Monieraceae Rafinesque, 1838,

nom. illeg.
Boroniaceae J. Agardh, 1858
Correaceae J. Agardh, 1858
Diplolaenaceae J. Agardh, 1858
Pilocarpaceae J. Agardh, 1858
Spatheliaceae J. Agardh, 1858
317. Flindersiaceae (Engler) C. White *ex* Airy Shaw, 1965.
318. Rhabdodendraceae (Huber) Prance, 1968
120. Meliales Lindley, 1833
319. Cneoraceae Link, 1831, *nom. cons.*
Chamaeleaceae Bertoloni, 1834, *nom. illeg.*
320. Simaroubaceae Candolle, 1811, *nom. cons.*
Quassiaceae Bertoloni, 1827
Soulameaceae Endlicher, 1841
Simabaceae Horaninow, 1847
Ailanthaceae J. Agardh, 1858
Castelaceae J. Agardh, 1858
321. Kirkiaceae (Engler) Takhtajan, 1967
322. Irvingiaceae (Engler) Exell & Mendonça, 1951, *nom. cons.*
323. Ptaeroxylaceae J. Leroy, 1960
324. Meliaceae A.L. Jussieu, 1789, *nom. cons.*
Cedrelaceae R. Brown, 1814
Swieteniaceae Berchtold & J. Presl, 1820
Aitoniaceae (Harvey) Reveal & Hoogland, 1992, *nom. cons. prop.*
121. Burserales Baskerville, 1839
325. Burseraceae Kunth, 1824, *nom. cons.*
Balsameaceae Dumortier, 1829
326. Anacardiaceae Lindley, 1830, *nom. cons.*
Cassuviaceae A.L. Jussieu *ex* R. Brown, 1818, *nom. illeg.*
Comocladiaceae Martinov, 1820
Spondiadaceae Martinov, 1820
Vernicaceae Link, 1829
Schinaceae Rafinesque, 1837
Sumachiaceae Candolle *ex* Perleb, 1838, *nom. illeg.*
327. Podoaceae Baillon *ex* Franchet, 1889
328. Pistaciaceae C. Martius *ex* Perleb, 1838
Terebinthaceae A.L. Jussieu, 1789
Lentiscaceae Horaninow, 1843
329. Blepharocaryaceae Airy Shaw, 1965
330. Tepuianthaceae Maguire & Steyermark, 1981
122. Julianales Engler, 1907
331. Julianiaceae Hemsley, 1906, *nom. cons.*
123. Leitneriales Engler, 1897
332. Leitneriaceae Bentham, 1880, *nom. cons.*
124. Coriariales Lindley, 1833
333. Coriariaceae Candolle, 1824, *nom. cons.*
125. Sapindales Dumortier, 1829
334. Dodonaeaceae Link, 1831, *nom. cons.*
335. Stylobasiaceae J. Agardh, 1858
336. Emblingiaceae (Pax) Airy Shaw, 1965
337. Sapindaceae A.L. Jussieu, 1789, *nom. cons.*
Allophyllaceae Martinov, 1820
Ornithropaceae Martinov, 1820
Koelreuteriaceae J. Agardh, 1858
338. Meliosmaceae Endlicher, 1841
Millingtoniaceae Wight & Arnott, 1834, *nom. illeg.*

Wellingtoniaceae Meisner, 1840
339. Sabiaceae Blume, 1851, *nom. cons.*
340. Physenaceae Takhtajan, 1985
341. Melianthaceae Link, 1831, *nom. cons.*
342. Akaniaceae Stapf, 1912, *nom. cons.*
343. Bretschneideraceae Engler & Gilg, 1924, *nom. cons.*
126. Acerales Lindley, 1833
Aesculales Bromhead, 1838
344. Hippocastanaceae Candolle, 1824, *nom. cons.*
Aesculaceae Berchtold & J. Presl, 1820
Paviaceae Horaninow, 1834
345. Aceraceae A.L. Jussieu, 1789, *nom. cons.*
127. Moringales Nakai, 1943
346. Moringaceae R. Brown *ex* Dumortier, 1829, *nom. cons.*
Hyperantheraceae Link, 1829
CC. Fabanae R. Dahlgren *ex* Reveal, 1992
128. Connarales Burnett, 1835
347. Surianaceae Arnott, 1834, *nom. cons.*
348. Connaraceae R. Brown, 1818, *nom. cons.*
Cnestidaceae (Rafinesque) Rafinesque, 1830
129. Fabales Bromhead, 1838
Papilionales Batsch, 1802
Lotales Burnett, 1835
Mimosales Burnett, 1835
Cassiales Horaninow, 1847
349. Caesalpiniaceae R. Brown, 1814, *nom. cons.*
Cassiaceae Vest, 1818
Tamarindaceae Berchtold & J. Presl
Bauhiniaceae Martinov, 1820
Ceratoniaceae Link, 1829
Detariaceae (Candolle) J. Hess, 1832
350. Mimosaceae R. Brown, 1814, *nom. cons.*
351. Swartziaceae (Candolle) Bart-ling, 1830
352. Fabaceae Lindley, 1836, *nom. cons.*
Leguminosae A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
Papilionaceae Giseke, 1792, *nom. cons.*; *nom. alt.*
Robiniaceae Vest, 1818
Viciaceae Berchtold & J. Presl, 1820
Aspalathaceae Martinov, 1820
Astragalaceae Martinov, 1820
Coronillaceae Martinov, 1820
Galedupaceae Martinov, 1820, *nom. illeg.*
Sophoraceae Sprengel *ex* Weinmann, 1824
Hedysaraceae Oken, 1826
Lotaceae Oken, 1826
Lathyraceae Burnett, 1835
Phaseolaceae Schnizlein, 1843-1870
Ciceraceae W. Steele, 1847
DD. Proteanae Takhtajan, 1967
130. Proteales Dumortier, 1829
353. Proteaceae A.L. Jussieu, 1789, *nom. cons.*
Embothriaceae Sprengel *ex* Weinmann, 1824
Lepidocarpaceae Schultz-Schultzenstein, 1832, *nom. illeg.*
EE. Rosanae Takhtajan, 1967
131. Rosales Perleb, 1826
Sanguisorbales Dumortier, 1829
354. Rosaceae A.L. Jussieu, 1789, *nom. cons.*

Spiraeaceae Bertuch, 1801
Poteriaceae Rafinesque, 1815
Fragariaceae Richard *ex* Nestler, 1816
Alchemillaceae Martinov, 1820
Tormentillaceae Martinov, 1820
Sanguisorbaceae Marquis, 1820
Agrimoniaceae Gray, 1821
Dryadaceae Gray, 1821
Ulmariaceae Gray, 1821
Potentillaceae Sprengel *ex* Weinmann, 1824
Quillajaceae D. Don, 1831
Neilliaceae Miquel, 1855
Cercocarpaceae J. Agardh, 1858
Coleogynaceae J. Agardh, 1858
Lindleyaceae J. Agardh, 1858
Rhodotypaceae J. Agardh, 1858
355. Amygdalaceae (A.L. Jussieu) D. Don, 1825, *nom. cons.*
Prunaceae Berchtold & J. Presl, 1820
356. Malaceae J.K. Small *ex* Britton, 1903, *nom. cons.*
Pyraceae Vest, 1818
Mespilaceae Schultz-Schultzenstein, 1832
Cydoniaceae Schnizlein, 1858
357. Neuradaceae Link, 1829, *nom. cons. prop.*
Grielaceae Martinov, 1820
132. Crossosomatales Takhtajan *ex* Reveal, 1992
358. Crossosomataceae Engler, 1897, *nom. cons.*
133. Crassulales Lindley
Sedales Reichenbach, 1828
359. Tetracarpaeaceae Nakai, 1943
360. Crassulaceae Candolle, 1805, *nom. cons.*
Sempervivaceae A.L. Jussieu, 1789
Sedaceae Roussel, 1806
Cotyledonaceae Martinov, 1820
Rhodiolaceae Martinov, 1820
Tillaeaceae Martinov, 1820
134. Cephalotales Nakai, 1943
361. Cephalotaceae Dumortier, 1829, *nom. cons.*
135. Saxifragales Dumortier, 1829
362. Penthoraceae Rydberg *ex* Britton, 1901, *nom. cons.*
363. Saxifragaceae A.L. Jussieu, 1789, *nom. cons.*
Pectiantiaceae Rafinesque, 1837
136. Grossulariales Lindley, 1833
364. Grossulariaceae Candolle, 1805, *nom. cons.*
Ribesiaceae Marquis, 1820
137. Parnassiales Nakai, 1943
365. Francoaceae Adr. Jussieu, 1832, *nom. cons.*
366. Vahliaceae Dandy, 1959
367. Eremosynaceae Dandy, 1959
368. Lepuropetalaceae (Engler) Nakai, 1943
369. Parnassiaceae Gray, 1821, *nom. cons.*
370. Greyiaceae Hutchinson, 1926, *nom. cons.*
138. Droserales Grisebach, 1854
371. Droseraceae R.A. Salisbury, 1808, *nom. cons.*
372. Drosophyllaceae Chrtek, Slavíková, & Studicka, 1989
373. Dionaeaceae Rafinesque, 1837
374. Aldrovandaceae Nakai, 1949
139. Stylidiales Takhtajan *ex* Reveal, 1992
375. Donatiaceae Hutchinson, 1959, *nom. cons., emend. prop.*
376. Stylidiaceae R. Brown,

1810, *nom. cons.*
Candolleaceae Mueller, 1882-1883, *nom. illeg.*
140. Diapensiales Engler & Gilg, 1924
377. Diapensiaceae (Link) Lindley, 1836, *nom. cons.*
Galacaceae D. Don, 1827
141. Roridulales Nakai, 1943
378. Roridulaceae Engler & Gilg, 1924, *nom. cons.*
142. Bruniales Dumortier, 1829
379. Anisophylleaceae Ridley, 1922
Polygonanthaceae Croizat, 1943
380. Bruniaceae R. Brown *ex* Candolle, 1825, *nom. cons.*
Berzeliaceae Nakai, 1943
381. Grubbiaceae Endlicher, 1839, *nom. cons.*
Ophiraceae Arnott, 1841
143. Geissolomatales Takhtajan *ex* Reveal, 1992
382. Geissolomataceae Endlicher, 1841, *nom. cons.*
144. Cunoniales Hutchinson, 1924
383. Cunoniaceae R. Brown, 1814, *nom. cons.*
Belangeraceae J. Agardh, 1858
Callicomaceae J. Agardh, 1858
384. Baueraceae Lindley, 1830
385. Eucryphiaceae Endlicher, 1841, *nom. cons.*
386. Brunelliaceae Engler, 1897, *nom. cons.*
387. Davidsoniaceae Bange, 1952
388. Staphyleaceae (Candolle) Lindley, 1829, *nom. cons.*
Ochranthaceae Lindley *ex* Endlicher, 1841
389. Tapisciaceae (Pax) Takhtajan, 1987
FF. Vitanae Takhtajan *ex* Reveal 1992
145. Vitales Burnett, 1835
390. Vitaceae A.L. Jussieu 1789, *nom. cons.*
Ampelopsidaceae Kosteletzky 1835
Cissaceae Horaninow, 1847
Pterisanthaceae J. Agardh, 18
391. Leeaceae (Candolle) Dumortier, 1829, *nom. cons.*
GG. Cornanae Thorne *ex* Reveal 1992
146. Hydrangeales Nakai, 1943
392. Philadelphaceae Martinov, 1820
393. Hydrangeaceae Dumorti 1829, *nom. cons.*
Hortensiaceae Berchtold & J. Presl, 1820
Kirengeshomaceae Nakai, 194
394. Escalloniaceae R. Brown *ex* Dumortier, 1829, *nom. co*
395. Argophyllaceae (Engler) Takhtajan, 1987
396. Iteaceae J. Agardh, 1858, *nom. cons.*
397. Tribelaceae (Engler) Airy Shaw, 1965
398. Dulongiaceae J. Agardh, 1858, *nom. cons. prop.*
Phyllonomataceae J.K. Small, 1905, *nom. rej. prop.*
399. Pterostemonaceae J.K. Small, 1905, *nom. cons.*
400. Griseliniaceae (Wangerin Takhtajan, 1987
401. Carpodetaceae Fenzl, 184
402. Alseuosmiaceae Airy Sha 1965
403. Montiniaceae Nakai, 1943 *nom. cons.*
404. Melanophyllaceae Takhta

jan *ex* Airy Shaw, 1972
406. Rousseaceae Candolle, 1839
407. Columelliaceae D. Don, 1828, *nom. cons.*
408. Desfontainiaceae Endlicher, 1841
147. Brexiales Lindley, 1833
405. Brexiaceae Loudon, 1830.
Ixerbaceae Grisebach, 1854
148. Gunnerales Takhtajan *ex* Reveal, 1992
409. Gunneraceae Meisner, 1842, *nom. cons.*
149. Haloragales Bromhead, 1838
410. Haloragaceae R. Brown, 1814, *nom. cons.*
Cercodiaceae A.L. Jussieu, 1817
411. Myriophyllaceae Schultz-Schultzenstein, 1832
150. Cornales Dumortier, 1829
412. Davidiaceae (H. Harms) H.L. Li, 1955
413. Nyssaceae A.L. Jussieu *ex* Dumortier, 1829, *nom. cons.*
414. Mastixiaceae Calestani, 1905
415. Cornaceae (Dumortier) Dumortier, 1829, *nom. cons.*
416. Curtisiaceae (H. Harms) Takhtajan, 1987
417. Alangiaceae Candolle, 1828, *nom. cons.*
418. Aucubaceae J. Agardh, 1858
151. Garryales Lindley, 1846
419. Garryaceae Lindley, 1834, *nom. cons.*
152. Aralidiales Takhtajan *ex* Reveal, 1992
420. Aralidiaceae Philipson & Stone, 1980
HH. Eucommianae Takhtajan *ex* Reveal, 1992
153. Eucommiales Nemejc *ex* Cronquist, 1981
421. Eucommiaceae Engler, 1909, *nom. cons.*
154. Icacinales Tieghem *ex* Reveal, 1993
422. Icacinaceae (Bentham) Miers, 1851, *nom. cons.*
Phytocrenaceae Arnott *ex* Brown, 1852
Pennantiaceae J. Agardh, 1858
423. Metteniusaceae Schnizlein, 1843-1870
424. Corynocarpaceae Engler, 1897, *nom. cons.*
425. Cardiopteridaceae Blume, 1849, *nom. cons.*
Peripterygiaceae F.N. Williams, 1905
426. Aextoxicaceae Engler & Gilg, 1920, *nom. cons.*
155. Pittosporales Lindley, 1833
427. Pittosporaceae R. Brown, 1814, *nom. cons.*
156. Byblidales Nakai *ex* Reveal, 1993
428. Byblidaceae Domin, 1922, *nom. cons.*
429. Tremandraceae R. Brown *ex* Candolle, 1824, *nom. cons.*
II. Podostemonanae R. Dahlgren *ex* Reveal, 1992
157. Podostemales Lindley, 1833
Marathrales Dumortier, 1829
430. Podostemaceae Richard *ex* C. Agardh, 1822, *nom. cons.*
Marathraceae Dumortier, 1829
431. Tristichaceae J.C. Willis, 1915
Philocrenaceae Bongard, 1834
JJ. Aralianae Takhtajan, 1967

158. Torricelliales Takhtajan *ex* Reveal, 1992
432. Helwingiaceae Decaisne, 1836
433. Torricelliaceae (Wangerin) H.H. Hu, 1934
159. Araliales Burnett, 1835
Angelicales Burnett, 1835
Ammiales J.K. Small, 1903
Apiales Nakai, 1930
434. Araliaceae A.L. Jussieu, 1789, *nom. cons.*
Hederaceae Giseke, 1792
Botryodendraceae J. Agardh, 1858
435. Hydrocotylaceae (Drude) N. Hylander, 1945, *nom. cons.*
436. Saniculaceae (Drude) A. Löve & D. Löve, 1974
Eryngiaceae Rafinesque, 1838
437. Apiaceae Lindley, 1836, *nom. cons.*
Umbelliferae A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
Angelicaceae Martinov, 1820
Bupleuraceae Martinov, 1820
Daucaceae Martinov, 1820
Imperatoriaceae Martinov, 1820
Pastinacaceae Martinov, 1820
Coriandraceae Burnett, 1835
Smyrniaceae Burnett, 1835
Ammiaceae (J. Presl & Presl) Barnhart, 1895
160. Caprifoliales Lindley, 1833
Lonicerales C. Baenitz, 1877
438. Caprifoliaceae A.L. Jussieu, 1789, *nom. cons.*
Loniceraceae Vest, 1818
439. Carlemanniaceae Airy Shaw, 1965
161. Viburnales Dumortier, 1829
Adoxales Nakai, 1949
440. Adoxaceae Trautvetter, 1853, *nom. cons.*
441. Sambucaceae Batsch Borck-hausen, 1797
442. Viburnaceae Rafinesqu 1820
Tinaceae Martinov, 1820
162. Valerianales Burnett, 18
443. Valerianaceae Batsc 1802, *nom. cons.*
444. Triplostegiaceae (Höc Bobrov *ex* Airy Shaw, 19
163. Dipsacales Dumortier, 18
445. Dipsacaceae A.L. Jussi 1789, *nom. cons.*
Scabiosaceae Adanson *ex* Po & Kuntze, 1903
446. Morinaceae Rafinesqu 1820
VII. Asteridae Takhtajan, 1967
KK. Asteranae Takhtajan, 196
164. Calycerales Burnett, 183
447. Calyceraceae R. Brov *ex* Richard, 1820, *nom. co*
Boopidaceae Cassini, 1816
165. Asterales Lindley, 1833
Ambrosiales Dumortier, 182
Carduales J.K. Small, 1903
448. Cichoriaceae A.L. Jussi 1789, *nom. cons.*
Cynaraceae A.L. Jussieu, 17
Cnicaceae Vest, 1818
Centaureaceae Martinov, 18
Lapsanaceae Martinov, 182
Picridaceae Martinov, 1820
Serratulaceae Martinov, 182
Echinopaceae Dumortier, 18
Acarnaceae Link, 1829
Perdiciaceae Link, 1829
Carduaceae Dumortier, 182
Mutisiaceae Burnett, 1835
Nassauviaceae Burmeister,
Lactucaceae Drude, 1879
Arctotidaceae Bessey, 1914

449. Asteraceae Dumortier, 1822, *nom. cons.*
Compositae Giseke, 1792, *nom. cons.*, *nom. alt.*
Tanacetaceae Vest, 1818
Anthemidaceae Martinov, 1820
Artemisiaceae Martinov, 1820
Athanasiaceae Martinov, 1820
Eupatoriaceae Martinov, 1820
Santolinaceae Martinov, 1820
Heleniaceae Rafinesque, 1824
Calendulaceae Link, 1829
Coreopsidaceae Link, 1829
Helichrysaceae Link, 1829
Partheniaceae Link, 1829
Helianthaceae Dumortier, 1829
Gnaphaliaceae F. Rudolphi, 1830
Senecionaceae Spenner, 1834
Vernoniaceae Burmeister, 1837
Matricariaceae Voigt, 1845
Inulaceae Bessey, 1914
450. Ambrosiaceae Dumortier, 1829, *nom. cons.*, *emend. prop.*
Xanthiaceae Vest, 1818

LL. Campanulanae Takhtajan *ex* Reveal, 1992

166. Campanulales Reichenbach, 1828
451. Menyanthaceae (Dumortier) Dumortier, 1829, *nom. cons.*
452. Pentaphragmataceae J. Agardh, 1858, *nom. cons.*
453. Sphenocleaceae C. Martius *ex* Candolle, 1839, *nom. cons.*
Pongatiaceae Meisner, 1839, *nom. illeg.*
454. Campanulaceae A.L. Jussieu, 1789, *nom. cons.*
Jasionaceae Dumortier, 1829
Cyananthaceae J. Agardh, 1858
455. Cyphiaceae A. de Candolle, 1839
456. Nemacladaceae Nuttall, 1843
457. Lobeliaceae R. Brown, 1817, *nom. cons.*
458. Cyphocarpaceae Miers, 1848
167. Goodeniales Lindley, 1833
Brunoniales Lindley, 1833
459. Goodeniaceae R. Brown, 1810, *nom. cons.*
Scaevolaceae Lindley, 1830
460. Brunoniaceae Dumortier, 1829, *nom. cons.*

VIII. Lamiidae Takhtajan *ex* Reveal, 1992

MM. Solananae R. Dahlgren *ex* Reveal, 1992

168. Solanales Dumortier, 1829
461. Solanaceae A.L. Jussieu, 1789, *nom. cons.*
Hyoscyamaceae Vest, 1818
Atropaceae Martinov, 1820
Nicotianaceae Martinov, 1820
Daturaceae Rafinesque, 1828
Cestraceae Schlechtendal, 1833
Lyciaceae Rafinesque, 1840
462. Salpiglossidaceae (Bentham) Hutchinson, 1969.
463. Sclerophylacaceae Miers, 1848
464. Duckeodendraceae Kuhlmann, 1950
465. Goetzeaceae Miers *ex* Airy Shaw, 1965
169. Nolanales Lindley, 1833
466. Nolanaceae Dumortier, 1829, *nom. cons.*
170. Convolvulales Dumortier, 1829
467. Erycibaceae Endlicher, 1840
468. Humbertiaceae Pichon,

1947, *nom. cons.*
469. Convolvulaceae A.L. Jussieu, 1789, *nom. cons.*
Cressaceae Rafinesque, 1821
Poranaceae J. Agardh, 1858
470. Dichondraceae Dumortier, 1829, *nom. cons.*
471. Cuscutaceae (Dumortier) Dumortier, 1829, *nom. cons.*
171. Boraginales Dumortier, 1829
Echiales Lindley, 1846
472. Hydrophyllaceae R. Brown *ex* Ker-Gawler, 1817, *nom. cons.*
Ellisiaceae Berchtold & J. Presl, 1820
Hydroleaceae Berchtold & J. Presl, 1820
Sagoneaceae Martinov, 1820
Eutocaceae Horaninow, 1847
473. Ehretiaceae C. Martius *ex* Lindley, 1830, *nom. cons.*
474. Cordiaceae R. Brown *ex* Dumortier, 1829, *nom. cons.*
Sebestenaceae Ventenat, 1799
475. Heliotropiaceae Schrader, 1820, *nom. cons.*
476. Boraginaceae A.L. Jussieu, 1789, *nom. cons.*
Buglossaceae Hoffmannsegg & Link, 1810
Anchusaceae Vest, 1818
Cerinthaceae Martinov, 1820
Onosmaceae Martinov, 1820
Echiaceae Rafinesque, 1837
477. Wellstediaceae (Pilger) Novák, 1943
478. Hoplestigmataceae Gilg, 1924, *nom. cons.*
479. Lennoaceae Solms-Laubach, 1870, *nom. cons.*
480. Tetrachondraceae Wettstein, 1924
172. Polemoniales Bromhead, 1838
481. Cobaeaceae D. Don, 1824
482. Polemoniaceae A.L. Jussie 1789, *nom. cons.*
NN. Loasanae R. Dahlgren *ex* Reveal, 1992
173. Loasales Bessey, 1907
483. Loasaceae Dumortier, 1822, *nom. cons.*
Gronoviaceae Endlicher, 1841
Cevalliaceae Grisebach, 1854
OO. Myrtanae Takhtajan, 1967
174. Lythrales Oliver, 1895
484. Psiloxylonaceae Croizat, 1961
485. Heteropyxidaceae Engler & Gilg, 1920, *nom. cons.*
486. Lythraceae Jaume Saint-Hilaire, 1805, *nom. cons.*
Salicariaceae A.L. Jussieu, 1789
Ammanniaceae Horaninow, 183
Lagerstroemiaceae J. Agardh, 1858
Lawsoniaceae J. Agardh, 1858
487. Duabangaceae Takhtajan, 1986
488. Sonneratiaceae Engler & Gilg, 1924, *nom. cons.*
Blattiaceae Niedenzu, 1892
489. Punicaceae Horaninow, 1834
490. Alzateaceae S. Graham, 1985
491. Rhynchocalycaceae L. Johnson & B. Briggs, 1985.
492. Trapaceae Dumortier, 1829, *nom. cons.*
493. Crypteroniaceae A. de Candolle, 1868, *nom. cons.*
Henslowiaceae Lindley, 1835
175. Penaeales Lindley, 1833
494. Penaeaceae Sweet *ex* Guille-

min, *nom. cons.*
495. Oliniaceae Harvey & Sonder, 1862, *nom. cons.*
176. Melastomatales Oliver, 1895
496. Melastomataceae A.L. Jussieu, 1789, *nom. cons.*
Rhexiaceae Dumortier, 1822
Miconiaceae Koch, 1857
Blakeaceae Reichenbach *ex* Barnhart, 1895
497. Memecylaceae Candolle, 1828
Mouririaceae Gardner, 1849, *nom. illeg.*
177. Combretales Baskerville, 1839
498. Combretaceae R. Brown, 1810, *nom. cons.*
Terminaliaceae Jaume Saint-Hilaire, 1805
Myrobalanaceae Martinov, 1820
Bucidaceae Sprengel *ex* Weinmann, 1824
Sheadendraceae Bertoloni *f.*, 1850
178. Onagrales Reichenbach, 1828
Oenotherales Bromhead, 1838
499. Onagraceae A.L. Jussieu, 1789, *nom. cons.*
Epilobiaceae Ventenat, 1799
Oenotheraceae Robin, 1807
Isnardiaceae Martinov, 1820
Jussiaeaceae Martinov, 1820
Circaeaceae Lindley, 1829
179. Myrtales Reichenbach, 1828
500. Myrtaceae A.L. Jussieu, 1789, *nom. cons.*
Myrrhiniaceae Arnott, 1839
Kaniaceae Nakai, 1943
501. Leptospermaceae F. Rudolphi, 1830
Melaleucaceae Vest, 1818
Chamelauciaceae Candolle *ex* F. Rudolphi, 1830

PP. Gentiananae Thorne *ex* Reveal, 1992
180. Loganiales Lindley, 1833
502. Loganiaceae R. Brown *ex* C. Martius, 1827, *nom. cons.*
503. Strychnaceae Candolle *ex* Perleb, 1826
Gardneriaceae Wallich *ex* Perleb, 1838
504. Potaliaceae C. Martius, 1827
505. Spigeliaceae C. Martius, 1827
506. Antoniaceae Hutchinson, 1959
507. Plocospermataceae Hutchinson, 1973
181. Rubiales Dumortier, 1829
Cinchonales Lindley, 1833
Galiales Bromhead, 1838
508. Naucleaceae (Candolle) Wernham, 1911
Cinchonaceae Batsch, 1802
Cephalanthaceae Rafinesque, 1820
Sabiceaceae Martinov, 1820
509. Rubiaceae A.L. Jussieu, 1789, *nom. cons.*
Coffeaceae Batsch, 1802
Guettardaceae Batsch, 1802
Aparinaceae Hoffmannsegg & Link, 1813-1820
Opercullariaceae A.L. Jussieu *ex* Perleb, 1818
Catesbaeaceae Martinov, 1820
Coutareaceae Martinov, 1820
Nonateliaceae Martinov, 1820
Hydrophylaceae Martinov, 1820
Pagamaeaceae Martinov, 1820
Randiaceae Martinov, 1820
Spermacoceaceae Sprengel *ex* Weinmann, 1824
Gardeniaceae Dumortier, 1829

Hedyotidaceae Dumortier, 1829
Lygodisodeaceae Bartling, 1830
Psychotriaceae F. Rudolphi, 1830
Asperulaceae Spenner, 1835
Galiaceae Lindley, 1836
Lippayaceae Meisner, 1838
Houstoniaceae Rafinesque, 1840
510. Henriqueziaceae Bremekamp, 1957
511. Dialypetalanthaceae Rizzini & Occhioni, 1948, *nom. cons.*
182. Theligonales Nakai, 1942
512. Theligonaceae Dumortier, 1829, *nom. cons.*
Cynocrambaceae Endlicher, 1841, *nom. illeg.*
183. Apocynales Bromhead, 1838
Vincales Horaninow, 1847
513. Apocynaceae A.L. Jussieu, 1789, *nom. cons.*
Vincaceae Vest, 1818
Cerberaceae Martinov, 1820
Pacouriaceae Martinov, 1820, *nom. illeg.*
Carissaceae Sprengel *ex* Weinmann, 1824
Plumeriaceae Horaninow, 1834
Ophioxylaceae C. Martius *ex* Perleb, 1838
Willughbeiaceae J. Agardh, 1858
514. Periplocaceae Schlechter, 1905, *nom. cons.*
184. Asclepiadales Dumortier, 1829
515. Asclepiadaceae R. Brown, 1810, *nom. cons.*
Stapeliaceae Horaninow, 1834
Cynanchaceae G. Meyer, 1836
185. Gentianales Lindley, 1833
Chironiales Grisebach, 1854
516. Gentianaceae A.L. Jussieu, 1789, *nom. cons.*
Coutoubeaceae Martinov, 1820
Obolariaceae Martinov, 1820
Chironiaceae Horaninow, 1847
517. Saccifoliaceae Maguire & Pires, 1978
QQ. Lamianae Takhtajan, 1967
186. Jasminales Dumortier, 1829
Oleales Lindley, 1833
Ligustrales Bischoff, 1840
518. Jasminaceae A.L. Jussieu 1789
Bolivariaceae Grisebach, 1838
Nyctanthaceae J. Agardh, 1858
519. Oleaceae Hoffmannsegg & Link, 1813-1820, *nom. con*
Lilacaceae Ventenat, 1799
Fraxinaceae Vest, 1818
Ligustraceae G. Meyer, 1836
Forestieraceae Endlicher, 1841
Schreberaceae (Wight) Schnizlein, 1843-1870
Syringaceae Horaninow, 1847
187. Plantaginales Lindley, 1833
520. Plantaginaceae A.L. Jussi 1789, *nom. cons.*
Littorellaceae Gray, 1821
Psylliaceae Horaninow, 1834
188. Bignoniales Lindley, 1833
521. Bignoniaceae A.L. Jussieu 1789, *nom. cons.*
Crescentiaceae Dumortier, 182
522. Pedaliaceae R. Brown, 1810, *nom. cons.*
Sesamaceae R. Brown *ex* Berchtold & J. Presl, 1820
523. Trapellaceae Honda & Saki-saka, 1930
524. Martyniaceae Stapf, 1895, *nom. cons.*
189. Scrophulariales Lindley, 183
Rhinanthales Dumortier, 1829
Veratrales Dumortier, 1829
525. *Buddlejaceae* K. Wilhelm,

1910, *nom. cons.*
526. Myoporaceae R. Brown, 1810, *nom. cons.*
Bontiaceae Horaninow, 1834
527. Scrophulariaceae A.L. Jussieu, 1789, *nom. cons.*
Pedicularidaceae A.L. Jussieu, 1789
Rhinanthaceae Ventenat, 1799
Antirrhinaceae Persoon, 1807
Caprariaceae Martinov, 1820
Chelonaceae Martinov, 1820
Digitalidaceae Martinov, 1820
Euphrasiaceae Martinov, 1820
Gratiolaceae Martinov, 1820
Linariaceae Martinov, 1820
Melampyraceae Richard *ex* Hooker & Lindley, 1821
Verbascaceae Rafinesque, 1821
Aragoaceae D. Don, 1835
Sibthorpiaceae D. Don, 1835
Calceolariaceae Rafinesque, 1838
Veronicaceae Rafinesque, 1838
Oxycladaceae (Miers) Schnizlein, 1855-1870
Limosellaceae J. Agardh, 1858
Erinaceae Duvau *ex* L. Pfeiffer, 1873
Paulowniaceae Nakai, 1949
528. Spielmanniaceae J. Agardh, 1858
529. Selaginaceae Choisy, 1823, *nom. cons.*
Hebenstretiaceae Horaninow, 1834
530. Ellisiophyllaceae Honda, 1930
531. Orobanchaceae Ventenat, 1799, *nom. cons.*
Phelypaeaceae Horaninow, 1834
Aeginetiaceae Livera, 1927
190. Globulariales Dumortier, 1829
532. Retziaceae Bartling, 1830
533. Stilbaceae Kunth, 1831, *nom. cons.*
534. Globulariaceae Candolle, 1805, *nom. cons.*
191. Lentibulariales Lindley, 1833
Pinguicularales Dumortier, 1829
535. Lentibulariaceae Richard, 1808, *nom. cons.*
Utriculariaceae Hoffmannsegg & Link, 1820
Pinguiculaceae Dumortier, 1829
192. Acanthales Lindley, 1833
536. Nelsoniaceae (Nees) Sreemadhavan, 1977
537. Thunbergiaceae Bremekamp, 1954
538. Meyeniaceae Sreemadhavan, 1977
539. Mendonciaceae Bremekamp, 1954
540. Acanthaceae A.L. Jussieu, 1789, *nom. cons.*
541. Justiciaceae Rafinesque, 1838
542. Thomandersiaceae Sreemadhavan. 1977
193. Gesneriales Dumortier, 1829
543. Gesneriaceae Dumortier, 1822, *nom. cons.*
Belloniaceae Martinov, 1820
Didymocarpaceae D. Don, 1822
Cyrtandraceae Jack, 1823
Besleriaceae Rafinesque, 1838
Ramondaceae Godron, 1850
194. Callitrichales Dumortier, 1829
544. Callitrichaceae Link, 1821, *nom. cons.*
Stellariaceae MacMillan, 1892, *nom. illeg.* non Dumortier, 1822
195. Hippuridales Burnett, 1835
545. Hippuridaceae Link, 1821,

nom. cons.

196. Verbenales Horaninow, 1847
546. Verbenaceae Jaume Saint-Hilaire, 1805, *nom. cons.*
Viticaceae A.L. Jussieu, 1789
Lantanaceae Martinov, 1820
Aegiphilaceae Rafinesque, 1838
Siphonanthaceae Rafinesque, 1838
Durantaceae J. Agardh, 1858
Petreaceae J. Agardh, 1858
547. Phrymaceae Schauer, 1847, *nom. cons.*
548. Symphoremataceae (Meisner) Moldenke *ex* Reveal & Hoogland, 1991
549. Cyclocheilaceae Marais, 1981
550. Nesogenaceae Marais, 1981
551. Avicenniaceae Endlicher, 1841, *nom. cons.*
197. Lamiales Bromhead, 1838
Menthales Burnett, 1835
552. Chloanthaceae Hutchinson, 1959
553. Lamiaceae Lindley, 1836, *nom. cons.*
Labiatae A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
Glechomaceae Martinov, 1820
Melittaceae Martinov, 1820
Salviaceae Sprengel *ex* Weinmann, 1824
Nepetaceae Horaninow, 1834
Menthaceae Burnett, 1835
554. Salazariaceae Barkley, 1975.
Scutellariaceae Caruel, 1894

Liliopsida Cronquist, Takhtajan & Zimmermann, 1966
IX. Alismatidae Takhtajan, 1967
RR. Butomanae Takhtajan *ex* Reveal, 1992
198. Butomales Hutchinson, 1934
555. Butomaceae Richard, 1814 1816, *nom. cons.*
SS. Alismatanae Takhtajan, 1967
199. Alismatales Dumortier, 1829
556. Limnocharitaceae Takhtajan *ex* Cronquist, 1981
557. Alismataceae Ventenat, 1799, *nom. cons.*
Damasoniaceae Nakai, 1943
200. Hydrocharitales Dumortier, 1829
Vallisneriales Nakai, 1949
Elodeales Nakai, 1950
558. Hydrocharitaceae A.L. Jussieu, 1789, *nom. cons.*
Elodeaceae Dumortier, 1829
Stratiotaceae Link, 1829
Vallisneriaceae Link, 1829
Elismataceae Nakai, 1943, *nom illeg.*
Enhalaceae Nakai, 1943
Blyxaceae (Ascherson & Gürcke Nakai, 1949
559. Thalassiaceae Nakai, 1943
560. Halophilaceae J. Agardh, 1858
TT. Najadanae Takhtajan *ex* Reveal, 1992
201. Aponogetonales Hutchinson, 1934
561. Aponogetonaceae J. Agar 1858, *nom. cons.*
202. Scheuchzeriales B. Boivin, 1956
562. Scheuchzeriaceae F. Rudo phi, 1830, *nom. cons.*
203. Juncaginales Hutchinson, 1934
563. Juncaginaceae Richard, 1808, *nom. cons.*

Triglochinaceae Chevallier, 1827
564. Lilaeaceae Dumortier, 1829, *nom. cons.*
Heterostylaceae Hutchinson, 1934
565. Maundiaceae Nakai, 1943
204. Potamogetonales Dumortier, 1829
Ruppiales Nakai, 1950
566. Potamogetonaceae Dumortier, 1829, *nom. cons.*
Hydrogetonaceae Link, 1829
567. Ruppiaceae Horaninow *ex* Hutchinson, 1934, *nom. cons.*
205. Posidoniales Nakai, 1943
568. Posidoniaceae Hutchinson, 1934, *nom. cons., emend. prop.*
Cauliniaceae J. Presl, 1846, *nom. illeg.*
206. Cymodoceales Nakai, 1943
569. Cymodoceaceae Norman Taylor, 1909, *nom. cons.*
570. Zannichelliaceae Dumortier, 1829, *nom. cons.*
207. Zosterales Nakai, 1943
571. Zosteraceae Dumortier, 1829, *nom. cons.*
208. Najadales Reichenbach, 1828
572. Najadaceae A.L. Jussieu, 1789, *nom. cons.*
X. Triuridídae Takhtajan *ex* Reveal, 1992
UU. Triuridanae Thorne *ex* Reveal, 1992
209. Triuridales J.D. Hooker *in* Le Maout & Decaisne, 1876
573. Triuridaceae Gardner, 1843, *nom. cons.*
574. Lacandoniaceae E. Martínes & C.H. Ramos, 1989
II. Liliidae Takhtajan, 1967
VV. Lilianae Takhtajan, 1967
210. Melanthiales R. Dahlgren *ex* Reveal, 1992
575. Melanthiaceae Batsch, 1802, *nom. cons.*
Veratraceae Vest, 1818
Heloniadaceae J. Agardh, 1858
Nartheciaceae J.K. Small, 1933
Lophiolaceae Nakai, 1943
576. Petrosaviaceae Hutchinson, 1934, *nom. cons.*
577. Campynemataceae Dumortier, 1829
211. Alstroemeriales Hutchinson, 1934
578. Alstroemeriaceae Dumortier, 1829, *nom. cons.*
212. Liliales Perleb, 1826
Colchicales Dumortier, 1829
Paridales Dumortier, 1829
579. Colchicaceae Candolle, 1805, *nom. cons.*
Merenderaceae Mirbel, 1804
Bulbocodiaceae R.A. Salisbury, 1866
580. Uvulariaceae A. Gray *ex* Kunth, 1843, *nom. cons. prop.*
Compsoaceae Horaninow, 1834
581. Liliaceae A.L. Jussieu, 1789, *nom. cons.*
Liriaceae Batsch *ex* Borckhausen, 1797
Tulipaceae Batsch *ex* Borckhausen, 1797
Erythroniaceae Martinov, 1820
Fritillariaceae R.A. Salisbury, 1866
582. Calochortaceae Dumortier, 1829
583. Medeolaceae (S. Watson) Takhtajan, 1987
584. Trilliaceae Lindley, 1846, *nom. cons.*

Paridaceae Dumortier, 1827
213. Iridales Dumortier, 1829
Ixiales Lindley, 1836
585. Geosiridaceae Jonker, 1939, *nom. cons.*
586. Iridaceae A.L. Jussieu, 1789, *nom. cons.*
Crocaceae Vest, 1818
Ixiaceae Horaninow, 1834
Galaxiaceae Rafinesque, 1836
Gladiolaceae Rafinesque, 1838
Hewardiaceae Nakai, 1943, *nom. illeg.*
Isophysidaceae (Hutchinson) F. Barkley, 1948
214. Tecophilaeales Traub *ex* Reveal, 1993
587. Tecophilaeaceae F. Leybold, 1862, *nom. cons.*
Androsynaceae R.A. Salisbury, 1866
Cyanellaceae R.A. Salisbury, 1866
Conantheraceae (D. Don) J.D. Hooker, 1873
588. Cyanastraceae Engler, 1900, *nom. cons.*
589. Eriospermaceae Endlicher, 1841
215. Burmanniales Heintze, 1927
590. Burmanniaceae Blume, 1827, *nom. cons.*
Tripterellaceae Dumortier, 1829
591. Thismiaceae J. Agardh, 1858, *nom. cons.*
592. Corsiaceae Beccari, 1878, *nom. cons.*
216. Asparagales Bromhead, 1838
593. Convallariaceae Horaninow, 1834
Aspidistraceae Endlicher, 1841
Platymetraceae R.A. Salisbury, 1866, *nom. illeg.*
Polygonataceae R.A. Salisbury, 1866
594. Ophiopogonaceae Endlicher, 1841
Peliosanthaceae R.A. Salisbury, 1866
595. Asparagaceae A.L. Jussieu 1789, *nom. cons.*
596. Ruscaceae Sprengel *ex* Hutchinson, 1934, *nom. cons.*
217. Asteliales Dumortier, 1829
597. Dracaenaceae R.A. Salisbury, 1866, *nom. cons.*
Sansevieriaceae Nakai, 1936
598. Nolinaceae Nakai, 1943
599. Herreriaceae Endlicher, 1841
600. Asteliaceae Dumortier, 1829
218. Hanguanales R. Dahlgren *ex* Reveal, 1992
601. Hanguanaceae Airy Shaw, 1965
219. Agavales Hutchinson, 1934
602. Asphodelaceae A.L. Jussieu 1789
603. Aloaceae Batsch, 1802
604. Anthericaceae J. Agardh, 1858
Laxmanniaceae Bubani, 1901-1902
605. Aphyllanthaceae Burnett, 1835
606. Luzuriagaceae J.P. Lotsy, 1911
607. Phormiaceae J. Agardh, 1858
Dianellaceae R.A. Salisbury, 186
608. Doryanthaceae R. Dahlgren & Clifford, 1985
609. Lanariaceae Huber *ex* R. Dahlgren, 1988
610. Hemerocallidaceae R. Brow

1810
611. Agavaceae Endlicher, 1841, *nom. cons.*
Yuccaceae J. Agardh, 1858
612. Hostaceae B. Mathew, 1988, *nom. cons. prop.*
Funkiaceae Horaninow, 1834
613. Blandfordiaceae Dahlgren & Clifford, 1985
614. Dasypogonaceae Dumortier, 1829
Kingiaceae Endlicher, 1838
615. Lomandraceae J.P. Lotsy, 1911
Xerotaceae Endlicher, 1838, *nom. illeg.*
616. Calectasiaceae Endlicher, 1838
617. Xanthorrhoeaceae Dumortier, 1829, *nom. cons.*
20. Alliales Traub, 1972
618. Ixiolirionaceae (Pax) Nakai, 1943
619. Hyacinthaceae Batsch *ex* Borckhausen, 1797
Scillaceae Vest, 1818
Eucomidaceae R.A. Salisbury, 1866
Lachenaliaceae R.A. Salisbury, 1866
Ornithogalaceae R.A. Salisbury, 1866
620. Hesperocallidaceae Traub, 1972
621. Alliaceae J. Agardh, 1858, *nom. cons.*
Gilliesiaceae Lindley, 1826
Agapanthaceae Voigt, 1850
Cepaceae R.A. Salisbury, 1866
Themidaceae R.A. Salisbury, 1866
Tulbaghiaceae R.A. Salisbury, 1866
622. Milulaceae Traub, 1972
221. Amaryllidales Bromhead, 1840
Narcissales Dumortier, 1829
623. Amaryllidaceae Jaume Saint-Hilaire, 1805, *nom. cons.*
Narcissaceae A.L. Jussieu, 1789
Leucojaceae Batsch *ex* Borckhausen, 1797
Crinaceae Vest, 1818
Brunsvigiaceae Horaninow, 1834
Galanthaceae G. Meyer, 1836
Gethyllidaceae Rafinesque, 1838
Pancratiaceae Horaninow, 1847
Abaminaceae J. Agardh, 1858, *nom. illeg.*
Cyrtanthaceae R.A. Salisbury, 1866
Haemanthaceae R.A. Salisbury, 1866
Oporanthaceae R.A. Salisbury, 1866
Strumariaceae R.A. Salisbury, 1866
Zephyranthaceae R.A. Salisbury, 1866
624. Hypoxidaceae R. Brown, 1814, *nom. cons.*
222. Velloziales R. Dahlgren *ex* Reveal, 1992
625. Velloziaceae Endlicher, 1841, *nom. cons.*
Barbaceniaceae Arnott, 1842
626. Acanthochlamydaceae (S.C. Chen) P.C. Kao, 1992
223. Smilacales Lindley, *Nix. Pl.* 23. 1833
627. Philesiaceae Dumortier, 1829, *nom. cons.*
Lapageriaceae Kunth, 1850
628. Ripogonaceae Conran & Clifford, 1985
629. Smilacaceae Ventenat,

1799, *nom. cons.*
630. Petermanniaceae Hutchinson, 1934, *nom. cons.*
224. Dioscoreales J.D. Hooker, 1876
Tamales Dumortier, 1829
631. Stenomeridaceae J. Agardh, 1858, *nom. cons.*
632. Dioscoreaceae R. Brown, 1810, *nom. cons.*
Tamaceae Martinov, 1820
Tamnaceae Kickx *f.*, 1826
633. Trichopodaceae Hutchinson, 1934, *nom. cons.*
634. Stemonaceae Engler, 1887, *nom. cons.*
Roxburghiaceae Wallich, 1832
635. Croomiaceae Nakai, 1937
636. Pentastemonaceae Duyfjes, 1992
225. Taccales Dumortier, 1829
637. Taccaceae Dumortier, 1829, *nom. cons.*
226. Orchidales Dumortier, 1829
638. Apostasiaceae Lindley, 1833, *nom. cons., emend. prop.*
639. Neuwiediaceae (Burns-Balogh & Funk) R. Dahlgren *ex* Reveal & Hoogland, 1991
640. Cypripediaceae Lindley, 1833
641. Orchidaceae A.L. Jussieu, 1789, *nom. cons.*
Neottiaceae Horaninow, 1834
Vanillaceae Lindley, 1835
Limodoraceae Horaninow, 1847
WW. Hydatellanae Takhtajan *ex* Reveal, 1992
227. Hydatellales Cronquist *in* Takhtajan, 1980
642. Hydatellaceae Hamann, 1976
XII. Commelinidae Takhtajan, 1967
XX. Bromelianae R. Dahlgren *ex* Reveal, 1992
228. Bromeliales Dumortier, 1829
643. Bromeliaceae A.L. Jussieu, 1789, *nom. cons.*
Tillandsiaceae Adr. Jussieu, 1843
YY. Pontederianae Takhtajan *ex* Reveal, 1992
229. Philydrales Dumortier, 1829
644. Philydraceae Link, 1821, *nom. cons.*
230. Pontederiales J.D. Hooker, 1876
645. Pontederiaceae Kunth, 1816, *nom. cons.*
Heterantheraceae J. Agardh, 1858
231. Haemodorales Hutchinson, 1934
646. Haemodoraceae R. Brown, 1810, *nom. cons.*
Xiphidiaceae Dumortier, 1829
Dilatridaceae Roemer, 1840
647. Conostylidaceae (Pax) Takhtajan, 1987
ZZ. Typhanae Thorne *ex* Reveal, 1992
232. Typhales Dumortier, 1829
648. Sparganiaceae F. Rudolphi, 1830, *nom. cons.*
649. Typhaceae A.L. Jussieu, 1789, *nom. cons.*
AAA. Commelinanae Takhtajan, 1967
233. Xyridales Lindley, 1846
650. Rapateaceae Dumortier, 1829, *nom. cons.*
651. Xyridaceae C. Agardh, 1823, *nom. cons.*
652. Abolbodaceae Nakai, 1943
234. Commelinales Dumortier, 1829
Ephemerales Burnett, 1835
653. Cartonemataceae Pichon,

1946, *nom. cons.*
654. Commelinaceae R. Brown, 1810, *nom. cons.*
Ephemeraceae Batsch, 1802, *nom. rej. prop.*, non Hampe, 1837, *nom. cons. prop.*
235. Mayacales Nakai, 1943
655. Mayacaceae Kunth, 1842, *nom. cons.*
236. Eriocaulales Nakai, 1930
656. Eriocaulaceae Palisot de Beauvois *ex* Desvaux, 1828, *nom. cons.*
BBB. Juncanae Takhtajan, 1967
237. Juncales Dumortier, 1829
657. Thurniaceae Engler, 1907, *nom. cons.*
658. Juncaceae A.L. Jussieu, 1789, *nom. cons.*
238. Cyperales Burnett, 1835
659. Cyperaceae A.L. Jussieu, 1789, *nom. cons.*
Scirpaceae Batsch *ex* Borckhausen, 1797
Caricaceae Sprengel *ex* Weinmann, 1824, non Dumortier, *nom. cons.*, 1829
Papyraceae Burnett, 1835
Kobresiaceae Gilly, 1952
239. Restionales Perleb, 1838
660. Flagellariaceae Dumortier, 1829, *nom. cons.*
661. Joinvilleaceae Tomlinson & A.C. Smith, 1970
662. Restionaceae R. Brown, 1810, *nom. cons.*
Elegiaceae Rafinesque, 1838
663. Anarthriaceae D. Cutler & Airy Shaw, 1965
664. Ecdeiocoleaceae D. Cutler & Airy Shaw, 1965
665. Centrolepidaceae Endlicher, 1836, *nom. cons.*
Devauxiaceae Dumortier, 1829, *nom. illeg.*
240. Poales Burnett, 1835
Avenales Bromhead, 1838
666. Anomochloaceae Nakai, 1943
667. Streptochaetaceae Nakai, 1943
668. Bambusaceae Burnett, 1835
669. Poaceae (R. Brown) Barnhart, 1895, *nom. cons.*
Gramineae A.L. Jussieu, 1789, *nom. cons.*; *nom. alt.*
Aegilopaceae Martinov, 1820
Alopecuraceae Martinov, 1820
Andropogonaceae Martinov, 1820
Avenaceae Martinov, 1820
Maydaceae Martinov, 1820
Melicaceae Martinov, 1820
Nardaceae Martinov, 1820
Saccharaceae Martinov, 1820
Agrostidaceae Sprengel *ex* Weinmann, 1824
Chloridaceae Sprengel *ex* Weinmann, 1824
Festucaceae Sprengel *ex* Weinmann, 1824
Hordeaceae Sprengel *ex* Weinmann, 1824
Oryzaceae Sprengel *ex* Weinmann, 1824
Panicaceae Sprengel *ex* Weinmann, 1824
Miliaceae Burnett, 1835
Phalaridaceae Burnett, 1835
Spartinaceae Burnett, 1835
Stipaceae Burnett, 1835
Zeaceae Kerner, 1891
Arundinaceae (Dumortier) Herter, 1940
Arundinellaceae (Stapf) Herter, 1940

Eragrostidaceae (Stapf) Herter, 1940
Pappophoraceae (Kunth) Herter, 1940
Lepturaceae (Holmberg) Herter, 1940
Pharaceae (Stapf) Herter, 1940
Sporobolaceae Herter, 1941
Tristeginaceae (Link) Herter, 1941
Parianaceae Nakai, 1943
XIII. Zingiberidae Cronquist, 1978
CCC. Zingiberanae Takhtajan *ex* Reveal, 1992
241. Musales Burnett, 1835
670. Musaceae A.L. Jussieu, 1789, *nom. cons.*
671. Strelitziaceae (Schumann) Hutchinson, 1934, *nom. cons.*
672. Heliconiaceae (A. Richard) Nakai, 1941
673. Lowiaceae Ridley, 1924, *nom. cons.*
242. Zingiberales Grisebach, 1854
Amomales Lindley, 1833
674. Zingiberaceae Lindley, 1835, *nom. cons.*
Amomaceae Jaume Saint-Hilaire, 1805
Curcumaceae Dumortier, 1829
Alpiniaceae R. Brown *ex* F. Rudolphi, 1830
675. *Costaceae* (Meisner) Nakai, 1941
243. Cannales Dumortier, 1829
676. Cannaceae A.L. Jussieu, 1789, *nom. cons.*
677. Marantaceae Petersen, 1888, *nom. cons.*
XIV. Arecidae Takhtajan, 1967
DDD. Aranae Thorne *ex* Reveal, 1992
244. Acorales Burnett, 1835
678. Acoraceae Martinov, 1820
245. Arales Dumortier, 1829
679. Araceae A.L. Jussieu, 1789, *nom. cons.*
Pistiaceae Richard *ex* C. Agardh, 1822
Callaceae Reichenbach *ex* Bartling, 1830
Orontiaceae Bartling, 1830
Arisaraceae Rafinesque, 1838
Pothaceae Rafinesque, 1838
Cryptocorynaceae J. Agardh, 1858
Caladiaceae R.A. Salisbury, 1866
Dracontiaceae R.A. Salisbury, 1866
680. Lemnaceae Gray, 1821, *nom. cons.*
Wolffiaceae Bubani, 1901-1902
EEE. Cyclanthanae Thorne *ex* Reveal, 1992
246. Cyclanthales Nakai, 1930
681. Cyclanthaceae Poiteau *ex* A. Richard, 1824, *nom. cons., emend. prop.*
FFF. Pandananae Thorne *ex* Reveal, 1992
247. Pandanales Lindley, 1833
682. Pandanaceae R. Brown, 1810, *nom. cons.*
Freycinetiaceae Brongniart *ex* Le Maout & Decaisne, 1868
GGG. Arecanae Takhtajan, 1967
248. Arecales Bromhead, 1840
Phoenicales Burnett, 1835
Cocosales Nakai, 1930
683. Arecaceae Schultz-Schultzenstein, 1832, *nom. cons.*
Palmae A.L. Jussieu, 1879, *nom. cons.*; *nom. alt.*
Coryphaceae Sprengel *ex* Weinmann, 1824
Phoenicaceae Sprengel *ex* Wein-

Index to Names

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Phytologia (March 1993) 74(3):264.

ERRATUM

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In MacRoberts & MacRoberts (1993), we reported that the age estimated from cores of *Pinus palustris* P. Mill. in two glades ranged from 120 to 380 years old. The upper figure is a miscalculation (one measurement was doubled) and the correct range is 120 to 220 years old.

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Phytologia (March 1993) 74(3):265-266.

A NEW SPECIES OF *PERITYLE* (ASTERACEAE, HELENIEAE) FROM SONORA, MEXICO

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ABSTRACT

A new species, Perityle alamosana B.L. Turner, is described from southern Sonora, México. It is related to *P. batopilensis* and *P. gentryi* but readily distinguished by a combination of features including erect habit, glandular pubescent stems, and well developed ray florets.

KEY WORDS: Asteraceae, Helenieae, *Perityle*, México, Sonora

Routine identification of Mexican Asteraceae has revealed the following novelty.

Perityle alamosana B.L. Turner, *sp. nov.* TYPE: MEXICO. Sonora: Rancho San Pedro and upper entrance of the cañon, 4 km N of Alamos (108° 42.3′ W, 27° 02.8′ N), "Evergreen forest", 480 m, 13-15 Mar 1991, *P.S. Martin, C. Lindquist, & S. Meyer s.n.* (HOLOTYPE: TEX!; Isotype: ARIZ).

Peritylae batopilensi A.M. Powell, similis sed caulibus ac pedicellis dense glandulosi-pubescentibus (vs. dense pilosis trichomatibus eglandulosis translucentibus) et capitulis radiatis (vs. eradiatis) differt.

Erect suffruticose perennial herbs 10-20 cm high, the basal portions decidedly woody. Stems densely glandular pilose with hairs ca. 0.25 mm long, interspersed among these a smattering of much longer eglandular translucent hairs 1-2 mm long. Midstem leaves mostly 2.0-3.5 cm long, 1.5-2.5 cm wide; petioles 1.0-1.5 cm long, pubescent like the stems; blades deltoid to cordate in outline, the undersurfaces atomiferous glandular and moderately pilose,

especially along the veins, the margins irregularly lacerate-dentate. Heads radiate, single on peduncles 1.5-2.5 cm long, the latter pubescent like the stems. Involucres campanulate, 5.5-6.0 mm high, the bracts pubescent like the peduncles. Ray florets ca. 8, the ligules yellow, ca. 6 mm long, 2 mm wide. Disk florets 20-30, the corollas yellow, 3.5-4.0 mm long, the tube ca. 1 mm long, glandular pubescent, the lobes ca. 0.5 mm long, each usually possessing 1-3, translucent hairs. Anthers yellow. Style branches linear, gradually acuminate. Achenes (immature) ca. 3 mm long, the body sparsely hispid, otherwise glabrous, epappose.

This species is closely related to *Perityle batopilensis* A.M. Powell and *P. gentryi* A.M. Powell; indeed, I had considered both of the latter to be synonymous in an early treatment of *Perityle* for México. However, more detailed examination of the type material of *P. batopilensis* and *P. gentryi* (TEX!) has now convinced me that these are good species. These several taxa belong to the subgenus *Laphamia* (sensu Powell 1973, 1983) and have a syndrome of characters that relate them: similar campanulate involucres with similar vestiture, short glandular hairs, long translucent eglandular hairs, or combinations thereof, and similar disk corollas, the lobes possessing 1-3 translucent hairs. The following couplets readily distinguish the taxa.

1. Stems repent or trailing. ..... *P. gentryi*

1. Stems erect or ascending. ..... (2)

2. Stems pilose with mostly translucent eglandular hairs 1-2 mm long; ray florets with ligules absent; Chihuahua. ..... *P. batopilensis*

2. Stems pilose with mostly glandular hairs; ray florets ligulate; Sonora. ..... *P. alamosana*

ACKNOWLEDGMENTS

I am grateful to my colleague Guy Nesom for the Latin diagnosis and to him and Mike Powell of Sul Ross State University for reviewing the manuscript.

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Phytologia (March 1993) 74(3):267-270.

DARCYA (SCROPHULARIACEAE), A NEW GENUS FROM CENTRAL AND SOUTH AMERICA

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ABSTRACT

Darcya, a new genus belonging to the Scrophulariaceae is proposed. It is represented by three localized species previously treated within the genus *Stemodia* (s.l.), as follows: **D. costaricensis** (B.L. Turner) B.L. Turner, *comb. nov.*, from Costa Rica; **D. mutisii** (Fern. Alonso) B.L. Turner, *comb. nov.*, from Colombia; and **D. reliquiarum** (D'Arcy) B.L. Turner & C. Cowan, *comb. nov.*, from Panamá. Descriptions of the Central American taxa are provided, along with a comprehensive key for identification purposes. *Darcya* does not appear to be especially close to *Stemodia* (s.l.), possessing a combination of unique characters not found in that genus or yet other genera of the tribe Gratioleae in which it is positioned.

KEY WORDS: *Darcya, Stemodia*, Scrophulariaceae, Gratioleae

Preparation of a synopsis of *Stemodia* (s.l.) for North and South America (Turner & Cowan 1993; in prep.) has occasioned the present paper. In our treatment for the New World we recognized ca. 32 species. In studying the considerable diversity within this group it became apparent that the several species discussed here could not be readily accommodated within *Stemodia* (s.l.) nor could they be readily placed in any other genus of our acquaintance. This was presaged by D'Arcy who noted that the generitype, *Darcya reliquiarum*, did not conform to any of the intrageneric groupings or closely related genera proposed by Minod (1918), "and might warrant recognition at the generic level". *Darcya* has the calyx and capsular characters of *Stemodia* (s.l.), but differs from the rest of the species in having pubescent anthers, very short styles, well defined terminal racemes, 3-5 principal nerves arising from near the base of the blade, and peculiar estipitate trapezoidal seeds.

Darcya (Scrophulariaceae) B.L. Turner & C. Cowan, *gen. nov.*

> *Stemodiae* L. (*nom. cons.*) similis sed inflorescentia racemosa terminali, foliis nerviis principalibus 3-5, antheris pubescentibus, fructibus stylis corpor capsulae multo brevioribus, et seminibus trapezoidibus paginis alveolati-reticulatis distinctus.

Suffruticose perennial herbs to 1 m high. Leaves opposite, simple, petiolate, with 3 principal nerves or somewhat subpinnately nervate, the margins serrulate. Flowers arranged in terminal bracteate racemes. Calyx ebracteolate, the lobes free and essentially alike. Corollas tubular, n. .kedly zygomorphic with well defined upper and lower lobes. Anther thecae pubescent dorsally with stiff white hairs. Capsules ovoid (4-5 mm high), 4 valvate, the styles persistent but much shorter than the body (ca. 0.3 mm long). Seeds trapezoidal, estipitate, alveolate-reticulate.

Type species, *Darcya reliquiarum* (D'Arcy) B.L. Turner & C. Cowan.

KEY TO SPECIES

1. Branches of the inflorescence glabrous; Costa Rica. ..... *D. costaricensis*
1. Branches of the inflorescence pubescent; Panamá and Colombia. .....(2)
    2. Branches of the inflorescence glandular pubescent; corollas 7.0-8.2 mm long; Colombia. ..... *D. mutisii*
    2. Branches of the inflorescence eglandular pubescent; corollas 4-5 mm long; Panamá. ..... *D. reliquiarum*

Darcya costaricensis (B.L. Turner) B.L. Turner, *comb. nov.* BASIONYM: *Stemodia costaricensis* B.L. Turner, Phytologia 73:253. 1992. TYPE: COSTA RICA. Cartago Province: "1-4 km beyond first bridge within Hydroelectric Plant Property (Instituto Costaricensis Electricidad) enroute to the reservoir at the road terminus," 4800-4900 ft, common but very local, 4 Mar 1981, *F. Almeda & K.Nakai 4734* (HOLOTYPE: TEX!; Isotype: CAS).

Sprawling or trailing suffruticose glabrous perennial herbs 10-100 cm high. Midstem leaves mostly 2-4 cm long, 1.0-1.8 cm wide; petioles mostly 3-8 mm long; blades broadly ovate to triangular ovate, trinervate to somewhat subpinnately nervate, minutely punctate beneath, the margins serrulate. Flowers arranged in terminal bracteate racemes 3-8 cm long, the pedicels glabrous,

mostly 8-14 mm long. Calyx glabrous, ebracteolate, mostly 3-4 mm long, the lobes essentially alike and free to the base. Corollas reportedly deep violet blue and "*Lobelia*-like", the tube ca. 3 mm long, the upper 2 lobes 2.5-3.0 mm long, the lower 3 lobes mostly 3-6 mm long, the central lobe 4-6 mm long. Anther thecae ca. 0.5 mm long, pubescent, separated by a globose connective. Capsule ovate, ca. 4 mm long. Seeds numerous, brown, trapezoidal, finely ornate like the hull of a peanut, ca. 0.5 mm long.

DISTRIBUTION: Known only from the vicinity of the type locality; flowering November-January.

ADDITIONAL SPECIMENS EXAMINED: COSTA RICA. Cartago: Twenty or more specimens as given with the original description.

Darcya reliquiarum (D'Arcy) B.L. Turner & C. Cowan, *comb. nov.* BASIONYM: *Stemodia reliquiarum* D'Arcy, Ann. Missouri Bot. Gard. 66:258. 1979. TYPE: PANAMA. Chiriquí: La Popa above Boquete, 1500-2500 m, 20 Mar 1977, *W.G. D'Arcy 10893* (HOLOTYPE: MO!; progeny of type material grown from seed, F!,K!,MO!).

Sprawling perennial herbs to 40 cm high. Stems sparingly branched, sparsely pubescent, glabrescent with age. Midstem leaves mostly 3-6 cm long, 1.4-2.6 cm wide; petioles 5-10 mm long, gradually tapered upon by the blades; blades ovate, with 3 principal nerves from near the base, glabrous or nearly so, minutely glandular punctate beneath, the margins irregularly serrate. Flowers arranged mostly in terminal bracteate racemes, the pedicels sparsely pilose, mostly 9-16 mm long. Sepals 2-4 mm long, all alike, without basal bracts, glabrous or nearly so. Corollas 4-5 mm long, blue, glabrous or nearly so, the lobes subequal, 2-3 mm long, minutely pubescent ventrally. Anther thecae ca. 0.25 mm long, pubescent dorsally with conspicuous stiff white hairs, the thecae sessile or one of these on a short stipelike connective. Capsule ovate (in outline), 4-5 mm high, the persistent style ca. 0.3 mm long, ca. as long as the stigmatic area, 4 valvate. Seeds trapezoidal, alveolate-reticulate, estipitate, ca. 0.3 mm long.

DISTRIBUTION: Panamá, where it is known only from cloud forests near Boquete, 1200-1700 m; flowering July-March.

D'Arcy provided an illustration of this species along with his original description.

Darcya mutisii (Fern. Alonso) B.L. Turner, *comb. nov.* BASIONYM: *Stemodia mutisii* Fern. Alonso, An. Jard. Bot. Madrid 44:394. 1987. TYPE: COLOMBIA. Depto. de Cundinamarca, Mpio. de San Bernardo, 1600 m, 27 Jun 1948, *M. Schneider 581-A* (HOLOTYPE: COL 81234).

This recently described species was first collected and illustrated following the Real Expedición Botánica del Nuevo Reino de Granada, under the direction of Mutis (1760-1790). The original illustration has been republished in black and white by F. Alonso with his original description. While I have not examined type material, the illustration and description leaves little doubt that the plant concerned belongs to *Darcya*. Indeed, it is closely similar to both *D. reliquiarum* and *D. costaricensis* but readily distinguished by its glandular pubescent inflorescence.

ACKNOWLEDGMENTS

We are grateful to Guy Nesom for the Latin diagnosis and to him and T.P. Ramamoorthy for reviewing the manuscript.

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Turner, B.L. & C. Cowan. 1993. Taxonomic overview of *Stemodia* (Scrophulariaceae) for North America and the West Indies. Phytologia 74:61-103.

Phytologia (March 1993) 74(3):271-272.

BOOKS RECEIVED

Inducible Plant Proteins, Their Biochemistry and Molecular Biology. J.L. Wray (ed.). Society for Experimental Biology Seminar Series 49. Cambridge University Press, 40 West 20th Street, New York, New York 10011-4211. 1992. xvi. 309 pp. $89.95 (hardcover). ISBN 0-521-40170-4.

Drawn from a 1991 symposium, 54 authors have contributed fourteen papers to this volume. Papers treat topics such as proteins produced in response to or in conjunction with phosphate starvation, nitrate reduction, Crassulacean acid metabolism, growth hormones, ripening, nodule formation, anaerobic respiration, heat shock, cold shock, and light stimuli.

The Language of the Cell. Claude Kordon. Translated from the French by William J. Gladstone. McGraw-Hill Horizons of Science Series. McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, New York 10020. 1993. 104 pp. $9.95 (paper). ISBN 0-07-035875-3.

This book, part of a series to bring science to nonscientists, examines the transfer of information within and between cells. The mechanisms of message production, transfer, and receipt are discussed. Evolutionary processes affecting cellular communication are considered.

Life Strategies of Succulents in Deserts, With Special Reference to the Namib Desert. Dieter J. von Willert, Benno M. Eller, Marinus J.A. Werger, Enno Brinckmann, & Hans-Dieter Ihlenfeldt. Cambridge Studies in Ecology. Cambridge University Press, 40 West 20th Street, New York, New York 10011-4211. 1992. xx. 340 pp. $89.95 (cloth). ISBN 0-521-24468-4 (cloth).

Chapter 1 defines, through morphology and anatomy, what the authors include as succulent plants, as well as information on evolution and geographic distribution of succulents. General information on deserts is found in Chapter 2, follow[illegible]l by a more detailed discussion of the Namib Desert in Chapter 3. Chapter 4 fills over half of the book and is devoted to discussion of physiological attributes of succulent plants. The final chapter examines life strategies of succulents.

The Olympic Rainforest, An Ecological Web. Ruth Kirk with Jerry Franklin. The University of Washington Press, P.O. Box 50096, Seattle, Washington 98145-5096. 1992. 128 pp. $35.00 (cloth); $17.50 (paper). ISBN 0-295-97195-9 (cloth); 0-295-97187-8 (paper).

A beautifully illustrated volume, this book provides a glimpse of the Olympic Rainforest. Other temperate wet forests are mentioned in the book, but the present work deals almost exclusively with the forests of the Olympic Peninsula. Animals as well as plants are included in the discussions and photographs.

Plant Biomechanics, An Engineering Approach to Plant Form and Function. Karl J. Niklas. The University of Chicago Press, 5801 Ellis Avenue, Chicago, Illinois 60637. 1992. xiv. 607 pp. $75.00 (cloth); $29.95 (paper). ISBN 0-226-58630-8 (cloth); 0-226-58641-6 (paper).

This book applies technical engineering analyses to plant structures. It contains basic introductory information on plants, mechanics, and effects of geometry on mechanics. These introductory chapters are followed with more in depth treatment of water relations, cell walls, mechanics of various tissue types, mechanics of organs, mechanics of the entire plant, fluid mechanics (primarily treating airflow), and effects of mechanical limiting principles on plant evolution. In addition to black and white photographs and line drawings, the book contains four color plates.

Information for Authors

Articles from botanical systematics and ecology, including biographical sketches, critical reviews, and summaries of literature will be considered for publication in PHYTOLOGIA. Manuscripts may be submitted either on computer diskette, or as typescript. Diskettes will be returned to authors after action has been taken on the manuscript. Diskettes may be 5.25 inches or 3.5 inches and may be written in any IBM or MacIntosh compatible format. Typescript manuscripts should be single spaced and will be read into the computer using a page scanner. The scanner will read standard typewriter fonts but will not read dot matrix print. Manuscripts submitted in dot matrix print cannot be accepted. Use underscore (not italics) for scientific names. Corrections made on typescript manuscripts must be complete and neat as the scanner will not read them otherwise. Language of manuscripts may be either English or Spanish. Figures will be reduced to fit within limits of text pages and therefore, should be submitted with an internal scale and have dimensions proportional to those for text pages. Legends for figures should be included in figures whenever possible. Each manuscript should have an abstract and key word list. Specimen citations should be consistent throughout the manuscript. Serial titles should be cited with abbreviations used in *Botanico Periodicum Huntianum.* References cited only as part of nomenclatural summaries should not appear in Literature Cited. Nomenclatural work should include one paragraph per basionym and must provide proper (as defined by the current *International Code of Botanical Nomenclature)* citation of sources of epithets and combinations.

Authors should arrange for two workers in the appropriate field to review the manuscript before submission. Copies of reviews should be forwarded to the editor with the manuscript. Manuscripts will not be published without review.

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